6. FOS Release B End-to-End Test Cases

Table 6-1. Release B End-to-End Test Cases

NCC:
·NCC-2020B NCC GCMR Processing
·NCC-2030B Request Analyze User Performance Data
ASTER:
·ASTR-2000B Scheduling & IST Access
FDF:
·FDF-2000B FDF Product Receipt
IST:
·IST-2000B IST Pool Management
·IST-2000B IST Functionality
SAS:
·SAS-2000B Remote Access and Carry-Out File T-fer
End-to-End
· ETE-2000B Concurrent OPS/Performance Monitor
· ETE-2010B ECT-2 Functional Test
· ETE-2050B Year 2000

NCC GCMR Processing

Test Case No: NCC-2020B	
Test Configuration: See Appendix G	
Test Support: EOC startup scripts. Data Server, Real-Time Server, UserStation, NCC Drivers	

Test Case Description:

This test is designed to verify the ability to send various Ground Configuration Message Requests (GCMR's) to the NCC dummy emulator, and process GCM Status and GCM Disposition messages received as a result of the NCC dummy emulators response to the ground configuration requests.

Success Criteria:

This test is considered successful when GCMR disposition and Status information generated by the NCC dummy emulator is mirrored in event messages, values for incoming status/disposition messages match the number received by the FOS, event messages describing accept/reject information in the GCM status message mirror the accept/reject information received by the NCC emulator.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto 1 FOT User Station. Start the User Station. Reference Test Case SYS2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Initialize the 'Global' event graphical timeline and event message displays from the Tools button by clicking on the Tools button located at the bottom of the Environment Control window, then select the 'Global' Events Display option.	The 'Global' events display will be displayed on the UserStation screen.	
5.	Connect to a real-time operational string from the Environment Control window; **> STRING CONNECT STRING =100 CONFIG=MIRROR**	Events Display message output: 'Successfully connected to string 100'	
6.	Take ground control; **> TAKE GROUNDCONTROL STRING=100**	Events Display message output: 'Ground Control Authority has changed from EcDNull to fosint**X**'	
7.	Take command; **> TAKE COMMAND STRING=100**	Events Display message output: 'Command Authority has changed from EcDNull to fosint**X**'	
8.	Send a Communication Test Message (CTM) to the NCC for GCMR services from the Environment Control window. **> NCC COMMTEST GCMR**	Events Display message output: 'NCC COMMTEST is sent to NCC'	

9.	Verify Communication Test Message (CTM) was sent and received at NCC.	Check for acknowledgment messages in Events Display.	
10.	If CTM not received then check port address in fos_services file for the machine the test is being run from. Ex.(fose8oe or fose10oe)	Address should be 55104 for GCMR services	
11.	Send a Communication Test Message (CTM) to the NCC for UPD services from the Environment Control window. > **NCC COMMTEST UPD**	Events Display message output: 'NCC COMMTEST is sent to NCC'	
12.	Verify Communication Test Message (CTM) was sent and received at NCC	Check for acknowledgment messages in Events Display.	
13.	If CTM not received then check port address in fos_services file for the machine the test is being run from. Ex.(fose8oe or fose10oe)	Address should be 55103 for UPD services.	
14.	Bring up page 'NCC_2020B' From the Environment Control window, click on 'Tlm Win'. Click on 'NCC_2020B'.	NCC_2020B page will be displayed with associated mnemonics	

15.	Enter RCCONFIG command From the Environment Control window; Enter command in 'Directive box' > **RCCONFIG STRING=100 TDRS=E00** [Enter]	Events Display message 'TDRS re-configured to E00' is generated.	

16.	Enter GCMR command
	
	From the Environment Control window
	
	Enter command in 'Directive box'
	
	> **GCMR REACQUISITION LINK=SSA1 SUPPORT=FORWARD** [Enter]
	
	Msg. Type= 98 Class= 03
		Events Display;
		
		Disposition and Status messages will appear with associated codes and explanations.
		
		NCC_COM page;
		
		Disposition
		
		    GCM_GD_MSG_ID = 0000001
		
		Status
		
		    GCM_GS_MSG_ID = 0000002	

17.	If GCMR message is not received at NCC, check the fos_services file of the UserStation that the test is running from.	The fos_services file should have port id. of 55104: nccGcmServ **55104**/tcp 150.144.207.15	
18.	Enter RCCONFIG command From the Environment Control window Enter command in 'Directive box' > **RCCONFIG STRING=100 TDRS=E03** [Enter]	Events Display message 'TDRS re-configured to E03' is generated.	

19.	Enter GCMR command	Events Display;	
	From the Environment Control window	Disposition and Status messages will appear with associated codes and expalnations.	
	Enter command in 'Directive box'	NCC_2020B page;	
	> **GCMR EIRPRECONFIG LINK=SSA1 POWER=NORMAL** [Enter]	Disposition	
		GCM_GD_MSG_ID = 0000003	
		Status	
	Msg. Type= 98 Class= 06	**GCM_GS_MSG_ID = 0000004**	
20.	Enter RCCONFIG command	Events Display message 'TDRS re-configured to E06' is generated.	
	From the Environment Control window		
	Enter command in 'Directive box'		
	> **RCCONFIG STRING=100 TDRS=E06** [Enter]		
21.	Enter GCMR command	Events Display;	
	From the Environment Control window	Disposition and Status messages will appear with associated codes and expalnations.	
	Enter command in 'Directive box'	NCC_2020B page;	
	> **GCMR EXPAND LINK=SSA1** [Enter]	Disposition	
		GCM_GD_MSG_ID = 0000005	
		Status	
	Msg. Type= 98 Class= 07	**GCM_GS_MSG_ID = 0000006**	

22.	Enter GCMR command From the Environment Control window Enter command in 'Directive box' > **RCCONFIG STRING=100 TDRS=E30** [Enter]	Events Display message 'TDRS re-configured to E30' is generated.	
23.	Enter GCMR command From the Environment Control window Enter command in 'Directive box' > **GCMR SWEEP LINK=SSA1** [Enter] Msg. Type= 98 Class= 05	Events Display; Disposition and Status messages will appear with associated codes and expalnations. NCC_2020B page; <u>Disposition</u> **GCM_GD_MSG_ID = 0000007** <u>Status</u> **GCM_GS_MSG_ID = 0000008**	
24.	Enter GCMR command From the Environment Control window Enter command in 'Directive box' > **RCCONFIG STRING=100 TDRS=E11** [Enter]	Events Display message 'TDRS re-configured to E11' is generated.	

25.	Enter GCMR command	Events Display;	
	From the Environment Control window	Disposition and Status messages will appear with associated codes and expalnations.	
	Enter command in 'Directive box'	NCC_2020B page;	
	> GCMR RECONFIG SA FORWARD ANTENNA=TYPE1 RATE=000001000 FREQ=0210640625 DOPCOMP=YES[Enter]	<u>Disposition</u>	
		GCM_GD_MSG_ID = 0000009	
		<u>Status</u>	
	Msg. Type= 98 Class= 04	**GCM_GS_MSG_ID = 0000010**	
26.	End Of test.		

Request/Analyze User Performance Data (UPD)

Test Case No: NCC-2030B

Test Configuration: See Appendix G

Test Support: EOC startup scripts. Data Server, Real-Time Server, UserStation, UPD DataDriver, UPD Data Set/File

Test Case Description:

This test case is designed to verify the capability of the FOS software to send User Performance Data (UPD) request messages to the NCC, Ingest UPD data into the Database, Demonstrate the capability to replay stored NCC UPD's data for a specific time period, the capability to process all data for time requested, the ability to process requested data between 3 to 12 times the real-time captured rate, the capability to perform Max, Min, and Mean (MMM) stats on UPD.

Success Criteria:

The test is considered successful when the FOS software is able to send a UPD request to the NCC, process the data requested, process the data requested at rates between 3 to 12 times the captured rate, provide statistical data on the Max, Min, and Mean (MMM) of incoming real-time NCC data, archive/save processed NCC data.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto 1 FOT User Station. Start the User Station. Reference Test Case SYS2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control window' is displayed.	
4.	Initialize the 'Global' event graphical timeline and event message displays from the Tools button by clicking on the Tools button located at the bottom of the Environment Control window, then select the 'Global' Events Display option.	The 'Global' events display will be displayed on the UserStation screen.	
5.	Initialize the 'Local' event graphical timeline and event message displays from the Tools button by clicking on the Tools button located at the bottom of the Environment Control window, then select the 'Local' Events Display option.	The 'Local' events display will be displayed on the UserStation screen.	
6.	Connect to a real-time operational string from the Environment Control window: **> STRING CONNECT STRING =100 CONFIG=MIRROR**	Events Display message output: 'Successfully connected to string 100'	
7.	Take groundcontrol at UserStation. **> TAKE GROUNDCONTROL STRING=100**	Events Display message output: 'Ground Control Authority has changed from EcDNull to fostest**X**'	

8.	Take Command Control at the UserStation. **> TAKE COMMAND STRING=100**	Events Display message output: 'Command Authority has changed from EcDNull to fostest**X**' 'Set Command authority to user fostest**X** at workstation fose**X**oe' 'Command Authority of NccGroundMgr changed to user: fostest**X** WKS: fose**X**oe' 'Command Authority of NccStatusMgr changed to user: fostest**X** WKS: fose**X**oe'	
9.	Bring up Page Displays from the 'Tlm Win' button in the Control window: Click on the 'Tlm Win' button. Select PageNames(s). TBD Submit *UPD_MA - page* *UPD_SSA - page* *UPD_KSA - page* *RCTDM - page* *Time_Transfer - page*	Pre-Defined displays will appear on screen.	

10.	Start UPD Driver.
	
	    % /net/beeper/fosb/dev/AM1/bin/ sun_sparc_5-5
	
	    % upd -sc AM1 -sid 100 -state 1
		Options menu for UPD Driver will appear on screen.	

11.	Start RcmClient Driver from a separate window.
	
	    % /net/beeper/fosb/dev/AM1/bin/ sun_sparc_5-5
	
	    % RcmClient
		RcmClient process will run in background.	

12.	Select Option #3 from the UPD Driver menu. **% 3**	Options menu for UPD configuration will appear on screen.	
13.	After configuration is complete, start UPD data.	*No Action/Result, information only*.	
14.	Send a User Performance Data (UPD) request message from the Command Control window. > **NCC UPD ENABLE**	Events Display message output: 'NCC UPD ENABLE message sent to NCC'	
15.	Display Pages will update with incoming UPD data.	Pages will update. Events Display message output: 'Start Receiving UPD from NCC'	

16.	Send a User Performance Data (UPD) request message from the Command Control window. > **NCC UPD DISABLE**	Events Display message output: 'NCC UPD DISABLE message sent to NCC'	
17.	Display Pages will stop updating with incoming UPD data.	Pages should stop updating. Events Display message output: 'Stop receiving UPD from NCC' Take Snap.	
18.	***UPD Replay Portion Starts (Archived).***	***No Action/Result, information only.***	
19.	Bring up UPD_Replay page. Click on 'Tlm Win' button in the Control window. Select UPD_Replay.	UPD_Replay page will appear on screen.	
20.	Bring up 'Replay Controller' window from the 'Tools' button: Click on Tools Select Replay Controller.	Replay Controller window will appear on screen.	
21.	Select a Spacecraft. Click on Spacecraft. Select 'AM1'.	AM1 will appear selected.	

22.	Select a Data Base: Click on Data Base. Select appropriate database.	1.0 will appear selected.	
23.	Select a Data Type: Click on Data Type. Select 'NCC'.	NCC will appear selected.	
24.	Select Replay Type: Click on Replay Type. Select Dedicated.	Dedicated will appear selected.	
25.	Select a Replay Rate (Kbps): Click on Replay Rate (Kbps). Enter 'XX' or toggle 'up' and 'down' arrows to desired rate. *Note, Enter Real-Time capture rate.*	XX will appear selected.	
26.	Select a time period to process: Click on Select Time.	Time Selector will appear in Replay window.	
27.	Input start and stop times in Archive Telemetry Specification area. Start - **YYYY/DOY HH:MM:SS** Stop **- YYYY/DOY HH:MM:SS**	Start and Stop fields will become populated with data.	

28.	Submit request by clicking on the 'Submit Request' button.	The bottom half of the window will display the requested start and stop times.	
29.	Start the data replay by selecting the 'Play' button	UPD data replay will start, values in UPD_Replay page will update.	
30.	Pause the replay by selecting the 'Pause' button.	UPD data replay will pause.	
31.	Continue the replay in the Step mode by clicking on the 'Step' button.	UPD data replay will start again, but only will process data in a 'step' mode, values in UPD_Replay page will update.	
32.	Change playback modes from Step to Play and process the rest of the selected time by selecting the 'Play' button.	UPD data replay start again, values in UPD_Replay page will update until the end of the requested time is reached, at which time a pop-up window will appear announcing that the end of data has been reached.	
33.	Take Snaps of UPD_replay page.	Snap taken.	
34.	Save processing request to 'file': Select 'File' from upper left side of Replay Controller. Select Save as… Enter directory and filename where file will be saved at.	Processing request will be saved.	
35.	*Start a second request.*	*No Action/Result, information only*	
36.	Click on the 'Reset' button.	All fields in the Replay Controller window return to default settings.	

37.	Select a Spacecraft:	AM1 will appear selected.	
	Click on Spacecraft.		
	Select 'AM1'.		
38.	Select a Data Base:	1.0 will appear selected.	
	Click on Data Base.		
	Select '1.0'.		
39.	Select a Data Type:	NCC will appear selected.	
	Click on Data Type.		
	Select 'NCC'.		
40.	Select Replay Type:	Dedicated will appear selected.	
	Click on Replay Type.		
	Select Dedicated.		
41.	Select a Replay Rate (Kbps):	XX will appear selected.	
	Click on Replay Rate (Kbps).		
	Enter 'XX' or toggle 'up' and 'down' arrows to desired rate.		
	Note, Enter 3 x Real-Time capture rate.		
42.	Select a time period to process by clicking on Select Time.	Time Selector will appear in Replay window.	

43.	Input start and stop times in Archive Telemetry Specification area. Start - **YYYY/DOY HH:MM:SS** Stop **- YYYY/DOY HH:MM:SS**	Start and Stop fields will become populated with data.	
44.	Submit the request by clicking on 'Submit Request' button.	The bottom half of the window will display the requested start and stop times.	
45.	Start the data replay by selecting the 'Play' button	UPD data replay will start, values in UPD_Replay page will update	
46.	Pause the replay by selecting the 'Pause' button	UPD data replay will pause.	
47.	Continue the replay in the Step mode by clicking on the 'Step' button	UPD data replay will start again, but only will process data in a 'step' mode, values in UPD_Replay page will update.	
48.	Change playback modes from Step to Play and process the rest of the selected time: Slide the time bar to a time starting after the step time. Select the 'Play' button.	UPD data replay start again, values in UPD_Replay page will update until the end of the requested time is reached, at which time a pop-up window will appear announcing that the end of data has been reached.	
49.	Take snaps of UPD_replay page.	Snap taken.	

50.	Save processing request to 'file': Select 'File' from upper left side of Replay Controller. Select Save as… Enter directory and filename where file will be saved at.	Processing request will be saved.	
51.	*Start a third request.*	*No Action/Result, information only.*	
52.	Click on the 'Reset' button.	All fields in the Replay Controller window return to default settings.	
53.	Select a Spacecraft: Click on Spacecraft. Select 'AM1'.	AM1 will appear selected.	
54.	Select a Data Base: Click on Data Base. Select '1.0'.	1.0 will appear selected.	
55.	Select a Data Type: Click on Data Type. Select 'NCC'.	NCC will appear selected.	
56.	Select Replay Type: Click on Replay Type. Select Dedicated.	Dedicated will appear selected.	

57.	Select a Replay Rate (Kbps): Click on Replay Rate (Kbps). Enter 'XX' or toggle 'up' and 'down' arrows to desired rate. *Note, Enter 12 x Real-Time capture rate.*	XX will appear selected.	
58.	Select a time period to process by clicking on Select Time.	Time Selector will appear in Replay window.	
59.	Input start and stop times in Archive Telemetry Specification area. Start - **YYYY/DOY HH:MM:SS** Stop - **YYYY/DOY HH:MM:SS**	Start and Stop fields will become populated with data.	
60.	Submit the request by clicking on the "Submit Request' button.	The bottom half of the window will display the requested start and stop times.	
61.	Start the data replay by selecting the 'Play' button.	UPD data replay will start, values in UPD_Replay page will update.	
62.	Pause the replay by selecting the 'Pause' button.	UPD data replay will pause.	
63.	Continue the replay in the Step mode by clicking on the 'Step' button.	UPD data replay will start again, but only will process data in a 'step' mode, values in UPD_Replay page will update.	

64.	Change playback modes from Step to Play and process the rest of the selected time: Slide the time bar to a time starting after the step time. Select the 'Play' button.	UPD data replay start again, values in UPD_Replay page will update until the end of the requested time is reached, at which time a pop-up window will appear announcing that the end of data has been reached.	
65.	Take snaps of UPD_replay page.	Snap taken.	
66.	Compare snaps.	All data/fields should match in all 3 snaps.	
67.	Save processing request to 'file': Select 'File' from upper left side of Replay Controller. Select Save as… Enter directory and filename where file will be saved at.	Processing request will be saved.	
68.	Bring down all processes.		
69.	End of test.		

ASTER Scheduling and IST Access

Test Case No: ASTR-2000B

Test Configuration: See Appendix G

Test Support: ASTER STSs and ODSs for the scheduling mode and the analysis mode. The simulated ASTER AOS will transmit the ODSs and STSs to the Simulated ASTER IST. The Simulated ASTER AOS will receive Preliminary Resource Schedules and Activity Schedules from the Simulated ASTER IST.

Activity definitions for all activities contained in the ASTER STSs and ODSs. One AM1 MODIS activity definition. Orbital events scheduled against in the STS and ODS files below. An activity and constraint definition that can be used to cause at least one of the activities in the STS and ODS files below to be constrained.

ASTER_STS_1999165100.txt: Short Term Schedule; schedule mode; no activities; all ASTER resources included for this test case; start-to-stop times span timeline for this test case to clear resources.

ASTER_STS_1999165200.txt: Short Term Schedule; schedule mode; one ASTER resource with no activities; at least one activity with a parameter record; at least one activity with a DAR ID record; at least one activity with a parameter record, a DAR ID record, and a comment record; at least one activity record where the activity contains a mode transition; at least one activity record with erroneous data that will not be scheduled. The activities that are schedulable will furthermore cover the full combination of allowable start-times (absolute time, orbital event) and stop-times (absolute time, orbital event, default duration).

ASTER_STS_1999165300.txt: Short Term Schedule; schedule mode; contains a file error (file will not be processed); valid activity records

ASTER_STS_1999165400.txt: Short Term Schedule; schedule mode; contains 200 activities spanning a 10 day period. This file will be used for performance testing.

ASTER_STA_1999165200.txt: Short Term Schedule; analysis mode; otherwise, the same as ASTER_STS_1999165200.txt

ASTER_ODS_1999165100.txt: One Day Schedule; schedule mode; otherwise, the same as ASTER_STS_1999165100.txt

ASTER_ODS_1999165200.txt: One Day Schedule; schedule mode; otherwise, the same as ASTER_STS_1999165200.txt

ASTER_ODS_1999165300.txt: One Day Schedule; schedule mode; otherwise, the same as ASTER_STS_1999165300.txt

ASTER_ODA_1999165100.txt: One Day Schedule; analysis mode; otherwise, the same as ASTER_ODS_1999165100.txt

ASTER_REQ_1999165101.txt: Request for EOC Schedule; start-to-stop times span ASTER schedules for this test

tlconfig.db: Timeline Configuration File. Configures the Timeline to display both activities and modes for the following resources: AM1 ASTER, AM1 VNIR, AM1 TIR, AM1 SWIR, AM1 ASTER CSP, AM1 ASTER MPS, and AM1 MODIS.

Test Case Description:

This test is designed to verify the EOC capability to perform ASTER Scheduling. The ASTER schedules will be received from the simulated AOS at the simulated ASTER IST and checked for constraint violations. The EOC (ASTER IST) will respond to STSs with a Preliminary Resource Schedule including constraint records. The EOC (ASTER IST) will respond to ODSs with an Activity Schedule including constraint records.

Success Criteria:

ASTER STSs and ODSs are successfully received and constraint checked by the EOC in schedule mode and analysis mode. STSs are responded to with the correct Preliminary Resource Schedules. ODSs are responded to with the correct Activity Schedules. In schedule mode, an STS or ODS with no activities results in deleted activities on resources between start and stop times on the Master Plan. In analysis mode, an STS or ODS with no activities results in deleted activities on resources between start and stop times on the analysis what-if plan. All messages between the AOS and the IST agree with formats described in the ECS and ASTER GDS ICD.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Login to the simulated ASTER IST: **\<user name\>** **\<password\>**	The Data Server must be running. The test files, i.e., STS and ODS files and the associated signal files, i.e., the files with an extension .XFR reside in the /fosb/test/am1/filterscheduler/incomingsfiles directory. The test files should not be in the /fosb/test/am1/filterscheduler/processedfiles directory. The output files should not be in the /fosb/test/AM1/asterresults directory. The activities included in the test file should exist in the database.	
2.	Start the UserStation: **setenv SCRIPT UserStation**	Set the environment variables.	
3.	Go to the setup directory: **setup**	The current directory is /fosb/test/am1/scripts/setup.	
4.	Source the FosEnvVars file: **source FosEnvVars**	Set more environment variables.	

5.	Bring up the User Station: **source UserStationStartup**	All windows are up including the Control window with the 'User Logged in' message.	
6.	IST -- Bring up the Event Display: From Control window, click on **'Tools'**.	The Tool Selection Box window pops up.	
7.	Select **'Event Display-Global'**.	Event Display-Global appears in the Selection box.	
8.	Click on **'OK'**.	The Tool Select Box window closes and the Event Display window pops up.	
9.	IST -- Open the Master Plan on EOS Timeline window for the period of time covered by the STSs and ODSs in this test case: From the EOS Timeline window, click on **'File'** and select **'Open'**.	The Open Plan dialog box pops up.	
10.	Select **'Master Plan'** and enter Start Date and Time: **<date> <time>**	The start dates/times are entered.	
11.	Enter Stop Date and Time: **<date> <time>**	The stop dates/times are entered.	
12.	Click on **'OK'**.	The Open Plan dialog box closes.	
13.	IST – Load the timeline configuration, tlconfig.db, for this test. From the EOS Timeline window, click on **'User Setup'** and select **'Load Setup'**.	The Load Setup dialog box pops up.	

14.	Enter <path>/tlconfig.db in the Selection window, where <path> is the directory path to the configuration file: **/home/fostest2/*.db**	The path is entered.	
15.	Click on **'Filter'**.	A list of files displayed.	
16.	Select **'tlconfig.db'**.	The tlconfig.db config file is highlighted.	
17.	Click on **'OK'**.	The Timeline snaps to the new configuration and the Load Setup dialog box closes.	
18.	Schedule an AM1 MODIS activity with start and stop times within the boundaries of ASTER_STS_1999165100.txt: From the General Scheduler window, click on the **'Resource'** toggle button, and select **'AM1 MODIS'**.	AM1 MODIS appears in the Resource box.	
19.	Click on **'Filter'** and select **'Activities'**.	A list of activities defined under the AM1 MODIS resource appears in the Activities box.	
20.	Select **'ALS_MODIS.2'** for scheduling.	The selected activity is highlighted. Default scheduling information appears.	
21.	Select **'Master Plan:1'** as the scheduling plan.	'Master Plan:1' is highlighted.	
22.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**.	The start date and time are entered.	
23.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**.	The stop date and time are entered.	

24.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
25.	Schedule an AM1 MODIS activity with start and stop times overlapping the start boundary of ASTER_STS_1999165100.txt. From the General Scheduler window, select **'ALS_MODIS.1'** for scheduling.	The selected activity is highlighted. Default scheduling information appears.	
26.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start date and time are entered.	
27.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop date and time are entered.	
28.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
29.	Schedule an AM1 MODIS activity with start and stop times overlapping the stop boundary of ASTER_STS_1999165100.txt. From the General Scheduler window, select **'ALS_MODIS.1'** for scheduling.	The selected activity is highlighted. Default scheduling information appears.	
30.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start time is entered.	
31.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop time is entered.	

32.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
33.	From the Timeline window, click on **'File'** and select **'Save'**.	The plan Master Plan:1 is saved.	
34.	Bring up another window.	Another window is brought up.	
35.	Go to the scripts area: **setup**	The current directory is /fosb/test/am1/scripts/setup.	
36.	Set the environment variables: **setenv SCRIPT UserStation**	The environment variables are set.	
37.	Set the environment variables: **source FosEnvVars**	The environment variables are set.	
38.	Start the ASTER Filter polling process: **detfile**	The ASTER Filter polling process begins looking for signal files in the incoming data directory and continues to look for signal files until it is stopped (CTRL-C).	
39.	Log into the simulated AOS on another terminal: **<user name>** **<password>**	The user logs into the simulated AOS.	

40.	Change to the ASTER test data directories: **cd /fosb/test/am1/filterscheduler/incomingfiles** **ls -al** **cd /fosb/test/am1/filterscheduler/processedfiles** **ls -al** **cd /fosb/test/AM1/asterresults** **ls -al**	No test file is listed.	
41.	AOS -- ftp data file ASTER_STS_1999165100.txt and signal file to the IST: **ftp beeper** **\<user name\>** **\<password\>** **cd /home/jtsou/aster/testfiles** **get ASTER_STS_1999165100.txt** **get ASTER_STS_1999165100.txt.XFR**	IST -- The EOS Timeline shows no activities for the resources included in the STS. AOS -- A PRS is received from the IST in the fosb/test/AM1/asterresults directory. Verify the PRS format with the ECS and ASTER GDS ICD.	
42.	AOS -- ftp data file ASTER_STS_1999165200.txt and signal file to the IST **get ASTER_STS_1999165200.txt** **get ASTER_STS_1999165200.txt.XFR**	IST -- The EOS Timeline shows the activities scheduled for the resources included in the STS. AOS -- A PRS is received from the IST in directory TBD. Verify the PRS format with the ECS and ASTER GDS ICD.	

43.	IST -- Snap the EOS Timeline: Click on each activity.	Start and stop dates/times displayed.	
44.	Verify ASTER DAR IDs are associated with the correct scheduled activities: Double-click on **'testact2.1'** with the start date/time: 1999/165 11:00:00 and stop date/time 1999/165 11:30:00 displayed on the EOS Timeline that is supposed to have associated DAR IDs.	The activity is displayed in the General Scheduler window. A new panel is shown at the bottom which displays the DAR Ids. The DAR Ids are the same as the observation number associated with the activity.	
45.	Delete ASTER_STS_1999165100.txt from the processedfiles directory that the test files are moved to: **rm ASTER_STS_1999165100.txt**	ASTER_STS_1999165100.txt is removed.	

46.	Delete the output files for STS 100 from the asterresults directory:
	
	    rm EOC_PRS_1999165100.txt
	
	    rm EOC_PRS_1999165100.txt.XFR
		The output files are removed.	

47.	AOS -- ftp data file ASTER_STS_1999165100.txt and signal file to the IST:
	
	    get ASTER_STS_1999165100.txt
	
	    get ASTER_STS_1999165100.txt.XFR
		IST -- The EOS Timeline shows no activities for the resources included in the STS.
		
		AOS -- A PRS is received from the IST in the asterresults directory. Verify the PRS format with the ECS and ASTER GDS ICD.	

48.	IST – Schedule an activity that has the same start/stop times and be on the same resource as an activity in ASTER_STS_1999165200: From the General Scheduler window, click on the **'Resource'** toggle button, and select **'AM1 ASTER'**.	AM1 ASTER appears in the Resource box.	
49.	Click on **'Filter'** and select **'Activities'**.	A list of activities defined under the AM1 ASTER resource appears in the Activity field.	
50.	Select **'testact2.1'** for scheduling.	The activity is highlighted.	
51.	Select **'Master Plan:1'** as the scheduling plan.	'Master Plan:1' is highlighted.	
52.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start time is entered.	
53.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop time is entered.	
54.	Click on **'Schedule'**.	The activity appears on the Timeline in the scheduled location.	
55.	Schedule an activity that overlaps one of the activities in ASTER_STS_1999165200: From the General Scheduler window, select **'testact3.1'** for scheduling.	The activity is highlighted.	
56.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start date/time is entered.	

57.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop date/time is entered.	
58.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
59.	From the Timeline window, select **'File'** and click on **'Save'**.	The EOS Timeline is saved.	
60.	Delete ASTER_STS_1999165200.txt from the directory that the output file is generated: **rm ASTER_STS_1999165200.txt**	ASTER_STS_1999165200.txt is removed.	

61.	Delete the output files for STS 200 from the asterresults directory:
	
	    rm EOC_PRS_1999165200.txt
	
	    rm EOC_PRS_1999165200.txt.XFR
		The output files are removed.	

62.	AOS – ftp data file ASTER_STS_1999165200.txt and signal file to the IST: **get ASTER_STS_1999165200.txt** **get ASTER_STS_1999165200.txt.XFR**	IST -- The Master Timeline shows the activities scheduled for the resources included in the STS. IST -- The activity with the same start/stop times as a new activity is replaced. IST -- The activities with start/stop times overlapped with new activities are replaced. IST -- The activity causing error flag = E appears in the PRS file. IST -- One activity appears constrained. Activities are scheduled relative to the start/stop triggers. AOS -- A PRS is received from the IST in directory TBD. Verify the PRS format with the ECS and ASTER GDS ICD. Verify that the activities that were not included on the Master Schedule appear with the 'E' flag in the PRS.	
63.	IST – Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	
64.	AOS – ftp data file ASTER_STS_1999165300.txt and signal file to the IST: **get ASTER_STS_1999165300.txt** **get ASTER_STS_1999165300.txt.XFR**	IST -- The Master Timeline is not changed. AOS -- A PRS is received from the IST in directory TBD. Verify the PRS format with the ECS and ASTER GDS ICD. Verify the PRS contains the correct error code.	

65.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	

66.	A O S -- f t p d a t a f i l e ASTER_ODS_1999165100.txt and signal file to the IST
	
	    get ASTER_ODS_1999165100.txt
	
	    get ASTER_ODS_1999165100.txt.XFR
		IST -- The Master Timeline shows no activities for the resources included in the ODS.
		
		AOS -- An ACS is received from the IST in directory TBD. Verify the PRS format with the ECS and ASTER GDS ICD. Compare this AS to the PRS received after sending ASTER_STS_1999165100.txt.	

67.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	

68.	A O S -- f t p d a t a f i l e ASTER_ODS_1999165200.txt and signal file to the IST:
	
	    get ASTER_ODS_1999165200.txt
	
	    get ASTER_ODS_1999165200.txt.XFR
		IST -- The Master Timeline shows the activities scheduled for the resources included in the ODS. Compare the Master timeline to the snap saved after sending ASTER_STS_1999165200.txt.
		
		AOS -- An ACS is received from the IST in directory TBD. Verify the ACS format with the ECS and ASTER GDS ICD. Compare this ACS to the PRS received after sending ASTER_STS_1999165200.txt.	

69.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	
70.	Delete ASTER_ODS_1999165100.txt from the processedfiles directory: **rm ASTER_ODS_1999165100.txt**	ASTER_ODS_1999165100.txt is removed.	

71.	Delete the output files for ODS 100 from the asterresults directory: **rm EOC_ACS_1999165100.txt** **rm EOC_ACS_1999165100.txt.XFR**	The output files are removed.	
72.	A O S -- f t p d a t a f i l e ASTER_ODS_1999165100.txt and signal file to the IST **get ASTER_ODS_1999165100.txt** **get ASTER_ODS_1999165100.txt.XFR**	IST -- The Master Timeline shows no activities for the resources included in the ODS. AOS -- An ACS is received from the IST in directory TBD. Verify the PRS format with the ECS and ASTER GDS ICD. Compare this AS to the PRS r e c e i v e d a f t e r s e n d i n g ASTER_ODS_1999165100.txt.	
73.	IST – Schedule an activity that has the same start/stop times and be on the same resource as an activity in ASTER_ODS_1999165200: From the General Scheduler window, click on the **'Resource'** toggle button, and select **'AM1 ASTER'**.	AM1 ASTER appears in the Resource box.	
74.	Click on **'Filter'** and select **'Activities'**.	A list of activities defined under the AM1 ASTER resource appears in the Activity field.	
75.	Select **'testact2.1'** for scheduling.	The activity is highlighted.	
76.	Select **'Master Plan:1'** as the scheduling plan.	'Master Plan:1' is highlighted.	
77.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start date/time is entered.	

78.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop date/time is entered.	
79.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
80.	Schedule an activity that overlaps one of the activities in ASTER_ODS_1999165200: From the General Scheduler window, select **'testact3.1'**.	The activity is highlighted.	
81.	Click on the **'Start Time'** toggle button and enter Start Date and Time: **<date> <time>**	The start date/time is entered.	
82.	Click on the **'Stop Time'** toggle button and enter Stop Date and Time: **<date> <time>**	The stop date/time is entered.	
83.	Click on **'Schedule'**.	The activity appears on the timeline in the scheduled location.	
84.	From the Timeline window, select **'File'** and click on **'Save'**.	The EOS Timeline is saved.	
85.	Delete ASTER_ODS_1999165200.txt from the processedfiles directory: **rm ASTER_ODS_1999165200.txt**	The current directory is /home/ASTER/ODS/done TBD. ASTER_ODS_1999165200.txt is removed.	

86.	Delete the output files for ODS 200 from the asterresults directory: **rm EOC_ACS_1999165200.txt** **rm EOC_ACS_1999165200.txt.XFR**	The output files are removed.	
87.	A O S -- f t p d a t a f i l e ASTER_ODS_1999165200.txt and signal file to the IST **get ASTER_ODS_1999165200.txt** **get ASTER_ODS_1999165200.txt.XFR**	IST -- The Master Timeline shows the activities scheduled for the resources included in the ODS. Compare the Master timeline to the snap saved after sending ASTER_STS_1999165200.txt. IST -- The activity with the same start/stop times as a new activity is replaced. IST -- The activity with a start/stop time overlapped with a new activity is replaced. IST -- The activity causing error flag = E appears in the ACS file. AOS -- An ACS is received from the IST in asterresults directory. Verify the ACS format with the ECS and ASTER GDS ICD. Compare this ACS to the PRS received after sending ASTER_STS_1999165200.txt.	
88.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	

89.	A O S -- f t p d a t a f i l e ASTER_ODS_1999165300.txt and signal file to the IST **get ASTER_ODS_1999165300.txt** **get ASTER_ODS_1999165300.txt.XFR**	IST -- The Master Timeline is not changed. AOS -- An ACS is received from the IST in directory TBD. Verify the ACS format with the ECS and ASTER GDS ICD. Compare this ACS to the PRS r e c e i v e d a f t e r s e n d i n g ASTER_ODS_1999165300.txt.	
90.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	
91.	A O S -- f t p d a t a f i l e ASTER_ODA_1999165100.txt and signal file to the IST: **get ASTER_ODA_1999165100.txt** **get ASTER_ODA_1999165100.txt.XFR**	AOS -- An ACA is received from the IST in directory TBD. Verify the ACA format with the ECS and ASTER GDS ICD.	
92.	IST -- Display the newly created what-if schedule in the EOS Timeline window: From the EOS Timeline window, click **'File'** and select **'Open'**.	The Open Plan dialog box pops up.	
93.	Select the new what-if plan for the ODA 100 file. Enter Start Date and Time: **<date> <time>**	The start dates and times are entered.	
94.	Enter Stop Date and Time: **<date> <time>**	The stop dates and times are entered.	
95.	Click on **'OK'**.	The Timeline displays the selected interval on the selected What-if plan.	

96.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	

97.	A O S -- f t p d a t a file ASTER_STA_1999165200.txt and signal file to the IST
	
	    get ASTER_STA_1999165200.txt
	
	    get ASTER_STA_1999165200.txt.XFR
		AOS -- A PRA is received from the IST in asterresults directory. Verify the PRA format with the ECS and ASTER GDS ICD.	

98.	IST -- Display the newly created what-if plan in the **'Timeline'** window: From the Timeline window, click **'File'** and select **'Open'**.	The EOS Master Plan is displayed for the desired time period.	
99.	Select the new what-if plan for the STA 200 file. Enter Start Date and Time: **\<date\> \<time\>**	The start dates and times are entered.	
100.	Enter Stop Date and Time: **\<date\> \<time\>**	The stop dates and times are entered.	
101.	Click on **'OK'**.	IST -- The what-if Timeline shows the activities scheduled for the resources included in the STA, and shows activities (if any) that were on the master plan for resources not included in the STA.	
102.	IST -- Snap the EOS Timeline: **snap**	The EOS Timeline is snapped.	

103.	A O S -- f t p d a t a f i l e ASTER_REQ_1999165101.txt and signal file to the IST:
	
	    get ASTER_REQ_1999165101.txt
	
	    get ASTER_REQ_1999165101.txt.XFR
		AOS -- An ACS is received from the IST in the asterresults directory. Verify the ACS format with the ECS and ASTER GDS ICD.	

104.	AOS – ftp data file ASTER_STS_1999165400.txt and signal file to the IST:
	
	    get ASTER_STS_1999165400.txt
	
	    get ASTER_STS_1999165400.txt.XFR
		IST – Verify that the ASTER Filter successfully completes processing of the input file within 30 minutes (check event messages).
		
		AOS - Verify that the PRS is received within 40 minutes of submission of the STS.	

105.	End of test.		

FDF Product Receipt

Test Case No: FDF-2000B

Test Configuration: See Appendix G

Test Support: A simulated FDF workstation will ftp sample FDF products to an EOC workstation.   The Data Server executable, FileWatcher, is used for moving files and invoking other processes. Netscape is used to generate and read the FDF validation report. IST workstations are used to verify receipt of orbital events for the Instrument Operations Team. The PDB must be populated with FDF table load definitions before a FDF table load can be generated. The FUI tool, Table Load Builder, is used to generated a table load.

Test Description:

This test is designed to verify the FOS capability to receive, validate, archive, and process FDF products defined in Table 3-1 of the EOS AM-1 FDD/ECS ICD. This test case will be divided into nine sections: Product Receipt and Validation, Update PAS timeline, Generate Statistics, Generate Datasets, FDF Table Load Generation, Distribution to IST, Distribution to ASTER, and Data Archival.

The simulated FDF workstation will FTP sample FDF products to the EOC workstation. FileWatcher retrieves the data from the external FDF directory. The bulk copy script will copy the files from the external FDF directory to the unvalidated database. Trigger files are used to validate the data. The validation criteria includes header and data record field correctness. If the sample FDF product fails validation, the product is not used and an error is generated. If the sample data successfully passes validation, the gen_op.script is used to move the files to the am1_fos_ops database. Once the files are moved to the ops database, FileWatcher invokes other subsystem processes.

The PAS subsystem is notified and the database is queried for orbital event data. The timeline is then examined for orbital event data.

The ANA subsystem is notified and the database is queried for FDF data used for statistic and dataset generation. There are two analysis products that are generated: FDFDataset and FDFStatistics.

All products are archived in a short-term archive directory. Once the DAAC interface is completed, all of the FDF products will be archived at the GSFC DAAC.

The ASTER IOT will receive planning aids once the ops database is populated. The products are FTP'd to an ASTER directory. The MISR, MODIS, MOPITT, and CERES IOT will also receive planning aids once the ops database is populated. The timeline is examined on the IST machine for orbital event data.

The CMS subsystem queries the database for FDF Table Load data. The table load data is validated according to the table definition criteria listed in the DFCD. The table definitions are located in the PDB. Once the data passes the DFCD validation, an FDF table load is generated using the Table Load Builder tool.

Success Criteria:

All FDF products listed in Table 1 are received, validated, and populated in the EOC operational database. FDF products with a header-record error or a data-record field error will fail validation and an error report is generated. The error report contains the product with highlighted errors. Upon receipt of updated FDF data, notification is sent to other FOS subsystems. Analysis products: datasets and statistics are generated for the products listed in Table 1. FDF P&S products listed in Table 1 are correctly displayed on the mission timeline. FDF Table load data is used to generate FDF Table Loads. Products are correctly distributed via ftp to ASTER and the other IST (Instrument Support Terminal). All FDF products listed in Table 1 are sent to the DAAC for long-term archival.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Login to an EOC Workstation: <username> <password>	The user logs into an EOC Workstation.	

2.	Bring up DataServer:
	
	     rlogin <data server name>
	
	     <password>
	
	     source DataServerStartup
		The user brings up the Data Server.
		
		 Wasp - Sun (Ops Lan)	

3.	Bring up the Real Time Server: source RealTimeServerStartup	The user brings up the Real Time Server	
4.	rlogin to a dataserver from the EOC Workstation rlogin <dataserver>	User is logged into a Dataserver from the EOC Workstation	

5.	Bring up an xterm on the Data Server xterm &	The user brings up an xterm.	
6.	Verify that FileWatcher is not running on the Data Server: ps -ea |grep FdFw	FileWatcher process is displayed.	
7.	Kill the FileWatcher process: kill -2 <process id>	The FileWatcher process is removed.	
8.	Verify that the FileWatcher process is not running: ps -ea |grep FdFw	FileWatcher process does not exist	
9.	Set the environment variables for the dataserver: setenv FDFW_TIMEOUT 60 setenv SCRIPT DataServer cd /fosb/test/am1/scripts/setup source FosEnvVars	The environment variables are set. FDFW_TIMEOUT 60 sets the FileWatcher to timeout in 60 seconds SCRIPT sets the X-Term to the Data Server	
10.	Bring up a UserStation on the EOC Workstation xterm: cd /fosb/test/am1/scripts/setup source UserStationStartup.pas	The user brings up the UserStation.	

11.	EOC UserStation -- Open the Master Plan on the EOS Timeline window for the period of time covered by the FDF test data products prepared for this test case: From the EOS Timeline window, click on 'File' and select 'Open'.	The PAS Open Plan dialog box pops up.	
12.	From the EOS Timeline window, highlight Master Plan Enter : Start Time 2008/171 00:00:00.000 Enter : Stop Time 2008/172 00:00:00.000	Start and stop times are entered.	
13.	Click on 'OK'.	The Open Plan dialog box closes. The EOS timeline displays day 171 to day 172.	

14.	Load timeline configuration file that displays all orbital events: Select 'User Setup'. Select 'Load Setup'. Select /fosb/test/am1/testdata/FDF on the Filter box. Use scroll bar and select timelineconfig.cnfg. Click on 'OK'.	The timeline is configured for the events display.	

15.	**Section 1 - Product Receipt and Validation**.
	
	 Login to the FDF Workstation. Invoke a x-terminal window and change to the FDF products directory:
	
	    % rlogin FDF UserStation
	
	    % cd /supfosb/test/data/FOS_Test_Data/FDF
	
	    % ls
		FDF Workstation is giraffe.
		
		 The current directory is:
		
		 /supfosb/test/data/FOS_Test_Data/FDF
		
		 The FDF User Station terminal window displays the FDF product files. The directory contains all products listed in Table 1 and a signal file. The signal file name has the same naming convention as the other FDF products and an additional extension of "XFERRED".
		
		 The signal file name is: test.FDD.XFERRED	

16.	FDF Workstation -- ftp all FDF products listed in FDF products directory to the EOC WorkStation:
	
	logon to FDF workstation
	
	    %: ftp <Copper>
	
	    % username
	
	    % password
	
	    %: cd /data/fosb/test/am1/external/fdf
	
	    %: mput *.FDD
	
	    %: put *.XFERRED (signal file)
	
	reply 'y' for each input
		The products are ftp'd to the external FDF directory on the EOC WorkStation.	

17.	Start a script for the file watcher on the dataserver: script /fosb/test/am1/testdata/FDF/fdf_log3	The script is a file that can be saved and printed. It saves all of the FileWatcher processes. This creates a history file of FileWatcher activity for post-test analysis.	

18.	Start FileWatcher on the DataServer xterm:
	
	    cd /fosb/test/am1/bin/sun_sparc_5-5
	
	    FdFwFileWatcher &
		FileWatcher copies all FDF products from the external/fdf directory to the input directory. The files are removed from the external fdf directory. This also starts the FDF load process via fdf_load.script. The FDF load process makes a subdirectory with current date and time in the input directory and moves all FDF products from the input directory to the subdirectory just created. The FDF load process also makes a	

		subdirectory with current date and time in the current subdirectory and moves all FDF products from the input directory to the subdirectory just created each time it runs.	
		One of the products contain header record type errors and data record field errors.	
		The test.FDD.XFERRED file must have the current date.	
		FOT User Station – the following event messages for each product is displayed:	
		"Updated FDF Data received and validated"	
		"Updated FDF Data received and validated"	
		For the products in Table-1 identified as "P&S": The FDF data is correctly displayed on the timeline display.	
		The following event message is displayed for the product with a header record file type error:	
		"FDF product header record file type error"	
		The following event message is displayed for the product with a data record field error:	
		"FDF product data record field error"	
		The File Watcher has finished when there is a message in the xterm window that says, "THE END."	

19.	End FileWatcher Process %ps -ea |grep FdFw %kill -2 <process id>	Verify event message noting FileWatcher termination.	
20.	FOT User Station – Verify that all files are received via a terminal window: % cd fosb/test/am1/fdf/input %: ls -lart	All files are listed in the newly created subdirectory. The signal file has the current date and time when it is ftped. The subdirectory name is mmddyyhhmm.	
21.	FTP error file from FDF workstation to the EOC WorkStation Bring up Xterm on the FDF workstation %cd /fosb/test/am1/external/fdf %put /supfosb/test/data/FOS_Test_Data/ FDF/err_file/ errorfilename.FDD %cd /fosb/test/am1/external/fdf %put /supfosb/test/data/FOS_Test_Data/FDF/ signalfile.FDD	Error file and Signal file are placed in the external FDF directory.	
22.	Start script: %script /fosb/test/am1/testdata/FDF/fdf_log4	Script has started for the error file.	

23.	Start FileWatcher on the DataServer xterm: cd /fosb/test/am1/bin/sun_sparc_5-5 FdFwFileWatcher &	FileWatcher has started. Error msgs should be displayed. Error report should be generated. THE END should be displayed.	
24.	Kill the FileWatcher: %ps -ea |grep FdFw %kill -2 <process id>	FileWatcher process should be displayed. FileWatcher is killed.	
25.	Verify the process has been removed.	FileWatcher process does not exist.	
26.	FOT User Station -- Use the HTML report browser to generate the Database Validation Report: netscape & Press 'Enter'.	The Netscape window opens.	
27.	Select bookmark for database utilities. Press 'Return'.	The Database Reports window opens.	
28.	Select 'Generate Reports'.	The Generate Database Reports window opens.	
29.	Select 'FDF Reports'.	The FDF Reports window opens.	
30.	Select 'FDF Validation Report'.	The FDF Validation Report window opens.	

31.	Click on 'OK'.	The following messages are displayed: "The FDF Validation Log Report Name will be fdf_valog_rpt<current date and time>. The report will now be generated. Report completed."	
32.	Click on 'Back' a couple of times.	Go to the FDF Reports window.	
33.	Select 'Return to the Database Reports screen'.	The Database Reports window opens.	
34.	Select 'View Reports'.	The View Database Reports window opens.	
35.	Select 'FDF Reports'.	The FDF reports exist in the reports directory are listed.	
36.	Enter the name of the report to view.	The report name is entered.	
37.	Click on 'OK'. Verify report contains all of the FDF validation errors.	The FDF Validation Log is displayed. FOT User Station -- The report records all validation errors.	
38.	Section 2 - Update PAS timeline. Verify PAS products listed in Table 1 are displayed on the timeline. Examine Timeline for FDF and Event Generator Events. -Simulated EOS AM-1 Ephemeris. -OMNI to TDRSS Viewing Times. -HGA to TDRSS Viewing Times.	PAS Events are correctly displayed on the timeline.	

	-OMNI to Ground Station Viewing Times -HGA Gimbal Angles -Predicted EOS-AM1 Ephemeris -Predicted TDRSS Ephemeris -Orbit Adjust Maneuver Request -Predicted Orbital Events -Planned Orbit Maneuver Dataset -Solar/Lunar Azimuth and Elevation Angles (CERES) -Solar Beta Angles -MODIS/MISR Sun/Moon FOV Events -MODIS/MISR Planet/Star FOV Events -Predicted Spacecraft Altitude -Predicted S/C Day/Night Length -X-Band Interference Times -Apogee/Perigee Altitude File -Predicted Orbit Number and Time Dataset -Predicted Instrument Orbit Events -Ground Station Contact Times -MODIS FOV Target View Period		

| 39. | **Section 3 - Dataset generation (Analysis Product)**

cd to the directory where datasets are generated:

    % cd /fosb/test/am1/datasets | Current directory is:

/fosb/test/am1/datasets | |

40.	Verify a dataset file is created and the contents are these FDF products: -Star Density Profile -SSST Star -ESA Sun/Moon Interference -FSS Visibility Predict -TDRSS State Vectors -Filter Tuning Parameters -OMNI to TDRSS Viewing Times -HGA to TDRSS Viewing Times -OMNI to Ground Station Viewing Times -HGA Gimbal Angles -Predicted TDRS Ephemeris -Mass and Center of Mass Location Estimates -Ku-Band Oscillator Frequency -EOS AM-1 Brouwer-Lyddane Elements -Predicted AM-1 Ephemeris: more	Statistics files is created. The file name is FDFDatasets.	
41.	**Section 4 - Statistics generation (Analysis Product)**		

42.	cd to the directory where statistics are generated: % cd /fosb/test/am1/statistics	Current directory is: /fosb/test/am1/statistics	
43.	Verify the contents of the statistics file. The file contains statistics for these three products: EOS Brouwer -Lyddane Elements KU Band Oscillator Frequency Report Mass And Center Of Mass Location Estimates	File name is FDFStatistics.	
44.	**Section 5 - FDF Table Loads** Bring up the Table Load Builder: From Control window, click on 'Tools'.	The Tool Selection Box window pops up.	
45.	Select 'Table Load Builder'.	The Table Load Builder window pops up.	
46.	Click on 'File', and select 'New'.	The Table Template Selection window pops up.	
47.	Select the desired table template by highlighting it.	The file definition window opens.	
48.	Click on 'OK'.	The information for each field in the table is listed.	
49.	Click on 'File'.	Menu is displayed.	
50.	Select 'Validate'.	Validation complete is displayed on the bottom of the screen.	
51.	Enter the table load name.	Load name is entered.	

52.	Click on 'Generate'.	Generate window is displayed.	
53.	Enter valid period: Start Date and Time (TBD). Stop Date and Time (TBD).	Times are entered.	
54.	Click on 'OK'.	Load Generation is successful.	
55.	**Section 6 - Distribution of FDD Products to IST (Instrument Support Terminal)** Logon to an IST UserStation	User logged on to an IST WorkStation: (elephante)	
56.	IST User Station -- Open the Master Plan on the EOS Timeline window for the period of time covered by the FDF test data products prepared for this test case: From the EOS Timeline window, click on 'File' and select 'Open'.	The PAS Open Plan dialog box pops up.	
57.	From the EOS Timeline window, highlight Master Plan Enter : Start Time 2008/171 00:00:00.000 Enter : Stop Time 2008/172 00:00:00.000	The start and stop dates/times are entered.	
58.	Click on 'OK'.	The Open Plan dialog box closes.	

59.	Load timeline configuration file that displays all orbital events:	The timeline is configured.	
	Select 'User Setup'.		
	Select 'Load Setup'.		
	Select /fosb/ist/am1/testdata/FDF on the Filter box.		
	Use scroll bar and select ASTER_timelineconfig.cnfg.		
	Click on 'OK'.		
60.	Examine the contents of the IST Timeline.	The timeline should display all of the FDF orbital events.	
61.	**Section 7 - ASTER** Examine the ASTER directory and verify the contents.	The ASTER directory is TBD.	
62.	**Section 8 - Data Archival** Go to the short term archival directory and examine the contents: %cd /fosb/test/am1/fdf/input	Current directory is: /data/fosb/test/fdf/input	

63.	Examine the short term data archival directory %cd /fosb/test/am1/fdf/input %ls %cd mmddyyhhmm directory %ls	The short term directory name is: mmddyyhhmm Verify contents of directory for archived files.	
64.	End of test.		

Table 6-2. FDF Products (1 of 4)

FDF PRODUCT	FILENAME	ICD SECT	Data -Set	Stat.	P&S	FTP ASTER	Table Load	Arch.	FOT (SECT 6)	Delete
Sensor Calibration Trend Report	SENCALTRDREP	3.2							X	
Sensor Calibration	SENCALIB	3.3					X	X		
IRU Calibration Table	IRUCALIBMAN	3.4						X		
EOS Mission Star Catalog	STARCATALOG	3.5					X	X		
Star Density Profile	STARDENPROF	3.6	X					X		
SSST Star Interference	STARINTERFER	3.7	X					X		
ESA Sun/Moon Interference	ESAINTERFER	3.8	X					X		
FSS Visibility Predict	FSSVISPREDICT	3.9	X					X		
Onboard Navigation EVAL./Quality Assurance	NAVEVALQUAL	3.10							X	
TDRS State Vectors	TDRSSTATE	3.11	X				X	X		
EOS Brouwer-Lynddane Elements	EOSBLELEM	3.12	X	X			X	X		
TDRS Brouwer-Lynddane Elements	TDRSBLELEM	3.13					X	X		
Master Oscillator Report	MASTOSCREP	3.14								X
Simulated EOS-AM1 Spacecraft Ephemeris	SIMSCEPHM	3.15						X		
Filter Tuning Parameters	TUNINGPARAM	3.16	X				X	X		
OMNI-to-TDRS Viewing Times	OMNITDRS	3.17	X		X			X		
HGA-to-TDRS Viewing Times	HGATDRS	3.18	X		X			X		
OMNI-to-Ground Station Viewing Times	OMNIGRND	3.19	X		X			X		
HGA Gimbal Angles	HGAGIMBAL	3.20	X		X			X		

Table 6-2. FDF Products (2 of 4)

FDF PRODUCT	FILENAME	ICD SECT	Data-Set	Stat.	P&S	FTP ASTER	Table Load	Arch.	FOT (SECT 6)	Delete
Predicted EOS-AM1 Ephemeris	EOSEPHM	3.21	X		X	X		X		
Predicted TDRS Ephemeris	TDRSEPHM	3.22	X		X			X		
Orbit Adjust Maneuver Request	ORBITMANREQ	3.24						X		
Delta-V Parameters Table	DELTAVPARM	3.25					X	X		
Mass and Center of Mass Location Estimates	MASSLOCATION	3.26	X	X			X	X		
Predicted EOS-AM1 Ranging Data File	FDFRANGE	3.27						X		
Attitude Predictions	ATTITUDE	3.28				X		X		
Predicted Orbital Events	ORBEVENT	3.29			X	X		X		
Planned Orbit Maneuver Dataset	MNVRTIME	3.30			X	X		X		
Solar/Lunar Azimuth and Elevation Angle	SUNAZEL MOONAZEL	3.31			X			X		
Solar Beta Angles	SOLBETA	3.32			X			X		
Predicted Local Sun Time	LOCALSUN	3.33						X		
Lunar Beta Angles	LUNBETA	3.34						X		
MODIS/MISR Sun and Moon FOV Events	SUNMNFOVEVNT	3.35			X			X		
MODIS/MISR Planets/Stars FOV Events	PLSTFOVEVNT	3.36			X			X		
Predicted Sub-Satellite Point (Groundtrack)	AM1GRNDTRCK	3.37				X		X		
Predicted Spacecraft Altitude	AM1ALT	3.38						X		
Predicted Spacecraft Day/Night Length	DAYNIGHT	3.39			X			X		
AM-1 State Error Covariance Matrix	STATEERRCOV	3.40					X	X		

Table 6-2. FDF Products (3 of 4)

FDF PRODUCT	FILENAME	ICD SECT	Data-Set	Stat.	P&S	FTP ASTER	Table Load	Arch.	FOT (SECT 6)	Delete
Solar/Lunar /Planetary (SLP) Ephemerides	SLPEPHM	3.41						X		
Simulated Doppler Data	SIMDOPPLER	3.43						X		
TDRS Mass and Solar Pressure Coefficient	TDMNSOLCOFF	3.46					X			X
EOS-AM1 Post Maneuver Report	AM1POSTMANREP	3.47							X	
Ku-Band Oscillator Frequency Report	OSCFREQREP	3.48	X	X				X		
X-band Interference Times	XBANDDSN	3.50			X			X		
Apogee/Perigee Altitude File	PERAPALT	3.51			X			X		
SCC Attitude Determination Validation	SCCATTVALID	3.52							X	
Predicted Orbit Number and Start Times	ORBITNUM	3.53			X			X		
UTC to UT1 Timing Difference	TIMINGDIFF	3.54					X	X		
Predicted Instrument Orbit Events	INSTORBEVENT	3.55			X			X		
Predicted EOS AM-1 State Vector	EOSSTATEVECT	3.56					X	X		
Simulated TDRS State Vectors	SIMTDRSSTAVEC	3.57						X		
Simulated EOS AM-1 Brouwer-Lynddane Elements	SIMEOSBLELEM	3.58						X		
Simulated TDRS Brouwer-Lynddane Elements	SIMTDRSBLELEM	3.59						X		
Simulated EOS AM-1 State Vectors	SIMAMSTAVEC	3.60						X		
X-Band Ground Station Contact Times	GRNDCONTACT	3.61			X			X		

Table 6-2. FDF Products (4 of 4)

FDF PRODUCT	FILENAME	ICD SECT	Data -Set	Stat.	P&S	FTP ASTER	Table Load	Arch.	FOT (SECT 6)	Delete
MODIS FOV Target View Period	MODISFOV	3.62			X			X		
Earth Gravity Model Spherical Harmonic Coefficient	HARMONICCOEFF	3.63					X	X		
Earth Gravity Model Degree Variance	DEGREEVAR	3.64					X	X		
Harris-Priester Atm. Density Model Data	DENSITYMODEL	3.65					X	X		
Solar Ephemeris Modification Data	SOLEPHMMOD	3.66					X	X		
EOS AM-1 Modeling Data	EOSMODELING	3.67						X		
TDRS Modeling Data	TDRSMODELING	3.68					X	X		
Ground Antenna Modeling Data	GRNDANTMODEL	3.69					X	X		
State Tolerance Data	STATETOLER	3.70					X	X		
Doppler Measurement Tolerance Data	MEASTOLER	3.71					X	X		
Covariance Tolerance Data	COVTOLER	3.72					X	X		
Navigation Time Step Data	NAVTIMESTEP	3.73					X	X		
Phys. and Math. Constants	PHYSCONST	3.74					X	X		
Master Oscillator and Spacecraft Clock Data	SCFTCLK	3.75					X	X		
Master Oscillator Frequency Bias Data	FREQBIAS	3.76					X	X		
Atmospheric Drag Data	ATMOSDRAG	3.77					X	X		
TDRS Measurement Bias Data	TDRSMEASBIAS	3.78					X	X		
Solar Eclipse Shadow Prediction								X		

IST Pool Management Test Procedure

Test Case No: IST-2000B	
Test Configuration: See Appendix G	

Test Support: Powered-up FOS Data Server, one EOC user station; three emulated ISTs; FOS Server, EOC User Station, and IST startup scripts.

Test Case Description:

Following initialization of the FOS Data Servers, the user configures the database table containing the IST pool management information ('ist_counter') to an initial state. Several iterations of reconfiguring the IST pool management information and logging into/logging out of ISTs are performed.

Success Criteria:

This test is designed to verify that the EOC can administer the allocation of IST connections, including additional IST connections; monitor IST startup and shutdown; and support a pool of IST connections, including both dedicated and non-dedidcated connections based on IST type and site.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log in to an EOC user station, using UNIX login procedure, by entering User Name and Password Username: **\<fostestX\>** Password: ********	The login is accepted and two UNIX cmdtool windows appear	

2.	Execute applicable portions of the 'FOS Server and User Station Startup and Shutdown' test procedure (SYS-2000B) to bring up FOS Data Server. *(Wait for initialization of the Data Server to complete before going to the next step)*	The FOS Data Server is properly initialized	
3.	Display the database table containing IST pool management information by entering the following in a cmdtool window: %: **isql -Ufos_dba -Pfos_dba** (**sql** is alias**)** 1> **use am1_fos_ops** 2> **go** 1> **select * from ist_counter** 2> **go**	The 'ist_counter' database table is displayed	
4.	Print the database table containing IST pool management information by entering the following in a cmdtool window: %: **snapframe**	The 'ist_counter' database table is printed for later use and includes the following types/sites: Dedicated: CERES/Bldg 1250, CERES/Bldg TBD, MODIS, MOPITT/Toronto, MOPITT/Boulder, MISR, Spacecraft I&T Facility. Non-dedicated: CERES/SAIC, CERES/Bldg 1300, CERES/Bldg TBD, MODIS, MISR.	

| 5. | Edit the 'ist_counter' database table by entering the 'isql' commands below:

Set the following items for all types/sites to 0

Current # dedicated connections (XxxCurrent);

Max possible # dedicated connections (XxxTotal);

Current # non-dedicated connections (XxxUnded);

Flag to use non-dedicated connections (XxxFlag).

Set max # non-dedicated connection (all sites) to 1.

    1> **update ist_counter**

    2> **set XxxCurrent = 0**

    3> **set XxxTotal = 0**

    4> **set XxxUnded = 0**

    5> **set XxxFlag = 0**

    6> **set UndedCurrent = 0**

    7> **set UndedTotal = 1**

    8> **go** | The 'ist_counter' database table is displayed. | |
| 6. | Log in to 3 ISTs, using UNIX login procedure, by entering User Name and Password

    Username: **\<istuserX\>**

    Password: ************ | The login is accepted and two UNIX cmdtool windows appear. | |

7.	IST #1 -- Attempt to bring up a CERES IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IST_LOGIN**
	
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)
	
	    %: **setenv LOCATION CERES**
		The CERES IST cannot be brought up (since there are no dedicated CERES connections available, and CERES is not allowed to use undedicated connections in the pool).	

8.	Edit the 'ist_counter' database table and change the following items by entering the 'isql' commands below:
	
	Flag for CERES to use non-dedicated connections (CeresFlag).
	
	Max # non-dedicated connections for all ISTs (UndedTotal).
	
	    1> **update ist_counter**
	
	    2> **set CeresFlag = 1**
	
	    3> **go**
		The applicable values are changed in the 'ist_counter' table.	

9.	Display the database table containing IST pool management information by entering the 'isql' commands below: 1> **select * from ist_counter** 2> **go**	The 'ist_counter' database table is displayed and all values are '0' except the following, which are '1': CeresFlag, and UndedTotal.	
10.	IST #1 -- Bring up a CERES IST by entering the following in a cmdtool window: %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias) %: **IST_LOGIN** *(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen.)* %: **setenv LOCATION CERES** *(Wait for initialization to complete before proceeding to the next step.)*	The CERES IST is initialized when the Control window appears.	

11.	IST #2 -- Attempt to bring up a MODIS IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IST_LOGIN**
	
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)
	
	    %: **setenv LOCATION CERES`**
		The MODIS IST cannot be brought up (since there are neither dedicated MODIS connections available nor undedicated connections left in the pool).	

12.	EOC User Station #1 -- Execute applicable portions of the 'FOS Server and User Station Startup and Shutdown' test procedure (SYS-2000B) to attempt to bring up an EOC User Station.	The EOC user station cannot be brought up (since there are neither dedicated EOC connections available nor undedicated connections left in the pool).	

13.	Display the database table containing IST pool management information by entering the 'isql' commands below:
	
	    1> **select * from ist_counter**
	
	    2> **go**
		The 'ist_counter' database table is displayed and all values are '0' except the following, which are '1':
		
		CeresUnded, CeresFlag, UndedCurrent, and UndedTotal	

14.	Edit the 'ist_counter' database table and change the following items by entering the 'isql' commands below:
	
	Max # MODIS dedicated connections (ModisTotal)
	
	Max # CERES dedicated connections (CeresTotal)
	
	Max # EOC dedicated connections (EocTotal)
	
	    1> **update ist_counter**
	
	    2> **set CeresTotal = 1**
	
	    3> **set ModisTotal = 1**
	
	    4> **set EocTotal = 36**
	
	    5> **go**
		The applicable values are changed in the 'ist_counter' table	

15.	EOC User Station #1 -- Execute applicable portions of the 'FOS Server and User Station Startup and Shutdown' test procedure (SYS-2000B) to bring up an EOC User Station. *(Wait for initialization to complete before proceeding to the next step)*	The EOC user station is initialized when the Control window appears.	

16.	IST #2 -- Bring up a MODIS IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IST_LOGIN**
	
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)
	
	    %: **setenv LOCATION MODIS**
	
	(Wait for initialization to complete before proceeding to the next step)
		The MODIS IST is initialized when the Control window appears.	

17.	IST #3 -- Bring up a CERES IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IST_LOGIN**
	
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)
	
	    %: **setenv LOCATION CERES**
	
	(Wait for initialization to complete before proceeding to the next step.)
		The CERES IST is initialized when the Control window appears.	

18.	Display the database table containing IST pool management information by entering the 'isql' commands below:
	
	    1> **select * from ist_counter**
	
	    2> **go**
		The 'ist_counter' database table is displayed and all values are '0' except EocTotal, which is 36, and the following, which are '1':
		
		CeresCurrent, CeresTotal, CeresUnded, CeresFlag, ModisCurrent, ModisTotal, EocCurrent, UndedCurrent, and UndedTotal	

19.	IST #1 -- Bring down the CERES IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IstKill**
	
	Note: Ensure the 'Environment Controller' proces is killed before proceeding to the next step
		The CERES IST is brought down.	

20.	Edit the 'ist_counter' database table and change the following items by entering the 'isql' commands below:
	
	Max # non-dedicated connection (all sites)
	
	    1> **update ist_counter**
	
	    2> **set UndedTotal = 0**
	
	    3> **go**
		The applicable values are changed in the 'ist_counter' table.	

21.	IST #1 -- Attempt to bring up a CERES IST by entering the following in a cmdtool window:
	
	    %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)
	
	    %: **IST_LOGIN**
	
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)
	
	    %: **setenv LOCATION CERES**
		The CERES IST cannot be brought up (since there are no dedicated CERES connections available, and there are no undedicated connections left in the pool).	

22.	Display the database table containing IST pool management information by entering the 'isql' commands below:
	
	    1> **select * from ist_counter**
	
	    2> **go**
		The 'ist_counter' database table is displayed and all values are '0' except EocTotal, which is 36, and the following, which are '1':
		
		CeresCurrent, CeresTotal, CeresFlag, ModisCurrent, ModisTotal, and EocCurrent	

23.	Edit the 'ist_counter' database table and change the following items by entering the 'isql' commands below:
	
	Max # CERES dedicated connections (CeresTotal)
	
	Max # non-dedicated connection (all sites)
	
	    1> **update ist_counter**
	
	    2> **set CeresTotal = 2**
	
	    3> **set UndedTotal = 1**
	
	    4> **go**
		The applicable values are changed in the 'ist_counter' table	

24.	IST #1 -- Bring up a CERES IST by entering the following in a cmdtool window:	The CERES IST is initialized when the Control window appears.	
	%: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias)		
	%: **IST_LOGIN**		
	(Wait until IST Login screen appears before entering the next command, but enter the next command before completing the IST Login screen)		
	%: **setenv LOCATION CERES**		
	(Wait for initialization to complete before proceeding to the next step)		
25.	Display the database table containing IST pool management information by entering the 'isql' commands below:	The 'ist_counter' database table is displayed and all values are '0' except for the following:	
	1> **select * from ist_counter**	EocTotal = 36	
	2> **go**	CeresCurrent, CeresTotal = 2	
		CeresFlag, ModisCurrent, ModisTotal, EocCurrent, and UndedTotal = 1	

26.	EOC User Station -- Bring down the EOC User Station by entering the following in a cmdtool window: %: **cd /fosb/test/am1/scripts/setup** (**test** is alias) %: **MyKill** Note: Ensure the 'Environment Controller' proces is killed before proceeding to the next step	The EOC User Station is brought down	
27.	IST #1 #2 #3 -- Bring down the 2 CERES and 1 MODIS IST by entering the following in a cmdtool window: %: **cd /data/fosb/ist/am1/scripts/setup** (**setup** is alias) %: **IstKill** Note: Ensure the 'Environment Controller' proces is killed before proceeding to the next step	The 2 CERES and 1 MODIS ISTs are brought down	
28.	Display the database table containing IST pool management information by entering the 'isql' commands below: 1> **select * from ist_counter** 2> **go**	The 'ist_counter' database table is displayed and all values are '0' except for the following: EocTotal = 36 CeresTotal = 2 CeresFlag, ModisTotal, and UndedTotal = 1	

29.	Edit the 'ist_counter' database table and reset the variables to their original values by entering the 'isql' commands below:
	
	    1> **update ist_counter**
	
	    2> **set \<variable\> = X**
	
	    3> **...**
	
	    4> **...**
	
	    x> **go**
		The 'ist_counter' database table is reset to its original values	

30.	Display the database table containing IST pool management information by entering the 'isql' commands below:
	
	    1> **select * from ist_counter**
	
	    2> **go**
		The 'ist_counter' database table is displayed and all values are reset to their original values	

31.	End of test.		

IST Functionality (IST-2010B)

Test Case No: IST-2010B

Test Configuration: See Appendix G

Test Support: Configured FOS servers; EOC LANs; and a workstation that emulates an IST.

Test Case Description:

This test is designed to verify IST workstation functions in 'connected' mode.   The test will verify the requirements set forth to an IST workstation. The process consists of executing a suite of procedures which contain the fore mentioned requirements.

Success Criteria:

This test is considered successful when the criteria of said suite of procedures are met.

Level 4 ID	Text	Clarification	Test Case
F-ANA-01025	The FOS shall be able to access all system generated statistics data files for analysis.	System generated statistics includes MMM statistics based on orbital, daily, monthly, and mission to date intervals, out of limits information based on daily and monthly intervals, and discrete parameter state change information based on daily and monthly intervals.	ANA-2100B
F-ANA-01030	The FOS shall allow the user to access a previously saved dataset for analysis.	A dataset is defined to be user specified data from a contiguous period of time from a single spacecraft. The dataset will have a standardized format which is described in the FOS Operations Tools Manual.	ANA-2120B
F-ANA-01050	The FOS shall be able to access NCC User Performance Data (UPD) for analysis.		NCC-2030B

F-ANA-03100	The FOS shall provide the capability to process a request for telemetry MMM data at daily resolution for any time span greater than or equal to one day.		ANA-2100B
F-ANA-03110	The FOS shall provide the capability to process a request for telemetry MMM data at monthly resolution for any time span greater than or equal to one month.		ANA-2100B
F-ANA-03120	The FOS shall provide the capability process a request for telemetry MMM data at orbit night resolution for any time span greater than or equal to one orbit.		ANA-2100B
F-ANA-03125	The FOS shall provide the capability process a request for telemetry MMM data at orbit day resolution for any time span greater than or equal to one orbit.		ANA-2100B
F-ANA-03130	The FOS shall provide the capability process a request for telemetry MMM data at full orbit resolution for any time span greater than or equal to one orbit.		ANA-2100B
F-ANA-03180	The FOS shall provide the capability to process a request for discrete parameter state change statistics data at daily resolution for any time span greater than or equal to one day.		ANA-2100B
F-ANA-03190	The FOS shall provide the capability to process a request for discrete parameter state change statistics data at monthly resolution for any time span greater than or equal to one month.		ANA-2100B

F-ANA-03200	The FOS shall provide the capability to request and access a report for out of limits statistics data at a daily resolution for any time span greater than or equal to one day.	ANA-2070B
F-ANA-03210	The FOS shall provide the capability to request and access a report out of limits statistics data at monthly resolution for any time span greater than or equal to one month.	ANA-2070B
F-ANA-04020	The FOS shall be able to generate datasets from archived S/C telemetry.	S/C data is stored in a merged archive of real-time and recorder data. Since this merged archive contains both types, the datasets generated may also contain both, depending on the time span of the dataset.	ANA-2000B
F-ANA-04040	The FOS shall provide the capability to generate datasets from data base defined derived parameters.	ANA-2120B
F-ANA-04050	The FOS shall provide the capability to generate a dataset from the results of a user supplied algorithm.	ANA-2040B
F-ANA-04120	The FOS shall provide the capability to generate datasets in the carryout format as specified in the FOS Operations Tools Manual.	Carryout file format is described in the FOS Operations Tools Manual.	ANA-2000B
F-ANA-04310	The FOS shall provide the capability to build ASCII reports from the system generated telemetry MMM statistics data.	ANA-2100B
F-ANA-04360	The FOS shall produce a Time Ordered Downlink Report for the time interval requested by the user.	ANA-2060B

F-ANA-06020	The FOS shall provide the capability to curve-fit a parameter to a polynomial of user specified order, up to order 9.	ANA-2040B
F-ANA-06021	The FOS shall provide the capability to apply a Fast Fourier Transform (FFT) to a parameter.	ANA-2040B
F-ANA-06022	The FOS shall provide the capability to smooth a parameter by a user specified factor. Smoothing means that every N data points, where N is the user specified factor, are averaged to yield a single data point.	ANA-2040B
F-ANA-06023	The FOS shall provide the capability to compute the Root Mean Square (RMS) of a parameter.	ANA-2040B
F-ANA-06040	The FOS shall provide the capability to apply a user supplied algorithm to data maintained in the telemetry archive.	The User algorithms shall be written in the 'C' or 'C++' language and be compiled and linked into a data object appropriate for dynamic linking on the target platform.	ANA-2040B
F-ANA-06050	The FOS shall provide the capability to utilize data contained within a dataset as input into a user supplied algorithm.	ANA-2040B
F-ANA-08060	The FOS shall provide the capability to selectively decommutate only those parameters which are required to fulfill the analysis request.	ANA-2120B

F-CMD-05310	The EOC shall provide the IP-ICC with a final instrument uplink status, with a failure status to indicate the point of failure.	The following are examples of possible status:-rejected by EOC _-transmitted, not received by spacecraft _-received by spacecraft; unsuccessfully executed _ (or) _-dispatched to instrument; unsuccessfully executed _-successfully executed. Status is provided via event messages visible at the IST user interface.	CMD-2070B
F-CMD-05410	The EOC shall provide an IP-ICC with instrument command notification messages, when emergency or contingency instrument commands are issued by other than the IP-ICC.	For example, by the EOC. Notification is provided via event messages visible at the IST user interface.	CMD-2070B
F-CMS-00720	The FOS shall provide the capability to specify the content of an RTS load based on the contents of a previously defined RTS load.		CMS-2170B
F-CMS-00725	The FOS shall provide the capability to accept an RTS load content imported from the Science Computing Facility (SCF).		CMS-2170B
F-CMS-00728	The FOS shall provide the capability to accept an RTS load content imported from the Software Development and Validation Facility (SDVF).		CMS-2170B
F-CMS-00729	The EOC shall validate the source and destination of RTS load content generated externally to the FOS.		CMS-2170B
F-CMS-00730	The FOS shall provide the capability to validate RTS contents.	The FOS will validate RTS contents using the definition of the RTS buffer characteristics in the PDB.	CMS-2170B

F-CMS-00850	The EOC shall generate an RTS load report whenever an RTS load is generated.	All load reports generated will be made available to the IOT through use of the IST.	CMS-2170B
F-CMS-00915	The EOC shall provide the capability to generate an RTS Catalog Report listing load content name associated with each RTS load available for uplink in the EOC.		CMS-2180B
F-CMS-00930	The EOC shall provide the capability to generate an RTS Map Report listing the name of the load content that is currently loaded into each RTS buffer.		CMS-2180B
F-CMS-00950	The FOS shall provide the capability to generate a Memory Map Report listing the memory location (offset within an RTS) and contents of each location in an RTS buffer.		CMS-2180B
F-CMS-01150	The EOC shall generate a table load report whenever a table load is generated.	All load reports generated will be made available to the IOT through use of the IST.	CMS-2040B
F-CMS-01215	The EOC shall provide the capability to generate a Table Catalog Report listing load content name and valid uplink window associated with each table load available for uplink in the EOC.		CMS-2190B
F-CMS-01225	The EOC shall provide the capability to generate a Table Map Report listing the name of the load content that is currently loaded into each table.		CMS-2190B
F-CMS-01330	The EOC shall generate a microprocessor load report whenever a microprocessor load is generated.	All load reports generated will be made available to the IOT through use of the IST.	CMS-2060B

F-CMS-01360	The EOC shall provide the capability to generate a Microprocessor Catalog Report listing load content name and valid uplink window associated with each microprocessor load available for uplink in the EOC.		CMS-2060B
F-CMS-01405	The FOS shall provide the capability to accept a flight software load content imported from the Software Development and Validation Facility (SDVF).		CMS-2060B
F-CMS-01410	The EOC shall validate the source and destination of binary format flight software load content generated externally to the FOS.		CMS-2060B
F-CMS-01430	The EOC shall generate a flight software load report whenever a flight software load is generated.	All load reports generated will be made available to the IOT through use of the IST.	CMS-2060B
F-CMS-01460	The EOC shall provide the capability to generate a Flight Software Catalog Report listing load content name and valid uplink window associated with each flight software load available for uplink in the EOC.		CMS-2060B
F-CMS-01505	The EOC shall provide the capability to produce an integrated report which includes the following information in chronological order: a. Absolute time commands to be executed. b. Relative time commands to be executed. c. Scheduled spacecraft contactsd. Real-time commands to be uplinkede. Loads to be uplinkedf. Expected orbital events.	The Integrated Report will be made available to the IOT via the IST.	PAS-2200B

F-CMS-01725	The FOS shall provide the capability to export instrument memory dump images to the SCF.	Memory dump images will be exported via the IST.	CMS-2000B
F-CMS-01730	The FOS shall provide the capability to export memory dump images to the SDVF.		CMS-2000B
F-CMS-01825	The FOS shall provide the capability to check the real-time commands in a procedure against command-level constraints.	Command-level constraints are defined in the PDB.	FUI-2060B
F-CMS-10510	The FOS shall provide the capability to send the ATC Load Report to the ASTER ICC.	The ASTER ICC will have the capability to view and print these reports through the standard IST user interface. Refer to the ICD Between ECS and ASTER GDS for more information.	ASTR-2000B
F-CMS-10750	The FOS shall provide the capability to send the RTS Load Report to the ASTER ICC.	The ASTER ICC will have the capability to view and print these reports through the standard IST user interface. Refer to the ICD Between ECS and ASTER GDS for more information.	ASTR-2000B
F-CMS-11510	The FOS shall provide the capability to send the Integrated Report to the ASTER ICC.	The ASTER ICC will have the capability to view and print these reports through the standard IST user interface. Refer to the ICD Between ECS and ASTER GDS for more information.	ASTR-2000B
F-DMS-00210	The EOC shall provide authorized users the capability to delete telemetry definitions maintained in the PDB.		DBS-2030B

F-DMS-00215	The EOC shall provide authorized users the capability to modify telemetry definitions maintained in the PDB.		DBS-2030B
F-DMS-00220	The EOC shall provide authorized users the capability to add command definitions to the PDB.		DBS-2030B
F-DMS-00225	The EOC shall provide authorized users the capability to delete command definitions maintained in the PDB.		DBS-2030B
F-DMS-00230	The EOC shall provide authorized users the capability to modify command definitions maintained in the PDB.		DBS-2030B
F-DMS-00235	The EOC shall provide authorized users the capability to add activity definitions to the PDB.	PAS has assumed responsibility for this requirement.	DBS-2030B
F-DMS-00240	The EOC shall provide authorized users the capability to delete activity definitions maintained in the PDB.	PAS has assumed responsibility for this requirement.	DBS-2030B
F-DMS-00245	The EOC shall provide authorized users the capability to modify activity definitions maintained in the PDB.	PAS has assumed responsibility for this requirement.	DBS-2030B
F-DMS-00250	The EOC shall provide authorized users the capability to add constraint definitions to the PDB.	PAS assumes responsibility for activity level constraint definitions.	DBS-2030B
F-DMS-00255	The EOC shall provide authorized users the capability to delete constraint definitions maintained in the PDB.	PAS assumes responsibility for activity level constraint definitions.	DBS-2030B

F-DMS-00260	The EOC shall provide authorized users the capability to modify constraint definitions maintained in the PDB.	PAS assumes responsibility for activity level constraint definitions.	DBS-2030B
F-DMS-01290	The FOS shall provide the capability to generate either local or global events.	Local events are display only for the user (IST or USER Station) that's involved in a "dedicated service " (e.g., dedicated relay or other standalone operations); Global events are multicast to all ISTs and User Stations.	EVT-2000B
F-DMS-01400	The FOS shall provide capability to ingest ASCII table load contents.	ASCII table load contents may be ingested from external facilities such as an SDVF.	CMS-2190B
F-FOS-00430	The FOS shall require a unique user identification and password for each individual user.		FUI-2090B
F-FOS-00465	The IST toolkit shall provide data integrity services for remote IST users communicating with the EOC.	The use of the data integrity services for sending information from the IST to the EOC will be evaluated on a case-by-case basis.	FUI-2090B
F-FOS-00470	The FOS shall provide the capability to authenticate users without sending passwords in the clear across networks.		SYS-2010B
F-FOS-00475	The FOS shall provide the capability to limit access of EOC files to authenticated IST users.		SYS-2010B
F-FOS-00480	The FOS shall provide authentication, authorization, and data integrity services that can be used by ISTs located inside and outside the United States.		SYS-2010B
F-FUI-01120	The FOS shall provide the capability to delete a room.		FUI-2100B

F-FUI-01125	The FOS shall allow a room to consist of 0 to 12 windows, with their respective sizes and positions in their default, tiled and user modified states.		FUI-2100B
F-FUI-01150	The FOS shall provide the capability to define the tiled position and size of each of the windows in a room.		FUI-2100B
F-FUI-01170	The FOS shall provide the capability to dynamically reposition windows in a room.		FUI-2100B
F-FUI-01175	The FOS shall provide the capability to dynamically resize windows in a room.		FUI-2100B
F-FUI-01180	The FOS shall provide the capability for a user to dynamically switch between room states.		FUI-2100B
F-FUI-01200	The FOS shall provide the capability to specify the default printer.		FUI-2020B
F-FUI-01205	The FOS shall provide the capability to specify the default data directories within the system.		FUI-2020B
F-FUI-01215	The FOS shall provide the capability to specify the default color intensities for the real-time windows.		FUI-2020B
F-FUI-01220	The FOS shall provide the capability to specify the default colors for non real-time windows.	The selection of colors will be from a predefined palette as defined in the ECS User Interface Style Guide.	FUI-2020B
F-FUI-01225	The FOS shall provide the capability to select the default font styles to be used from a predefined selection.		FUI-2020B

F-FUI-01230	The FOS shall provide the capability to modify the quick access room selections in the Control window.		FUI-2020B
F-FUI-01340	The FOS shall allow the user to initiate functions using function keys.		FUI-2000B
F-FUI-01400	The FOS shall provide a login screen that allows a user to enter a user name and password.		FUI-2090B
F-FUI-01400	The FOS shall provide a login screen that allows a user to enter a user name and password.		SYS-2010B
F-FUI-01405	The FOS shall allow a user to specify a user type (e.g., CAC, OLE, PI/TL, etc.) for the current login session.		FUI-2090B
F-FUI-01405	The FOS shall allow a user to specify a user type (e.g., CAC, OLE, PI/TL, etc.) for the current login session.		SYS-2010B
F-FUI-01420	The IST shall provide the capability for a PI/TL to enter a list of authorized IST users.		FUI-2090B
F-FUI-01430	The IST shall provide the capability for a PI/TL to delete IST users from the system.		FUI-2090B
F-FUI-01440	The IST shall provide the capability for a PI/TL to change the user types for IST users in the system.		FUI-2090B
F-FUI-01565	The FOS shall allow procedures to invoke other procedures.		FUI-2060B
F-FUI-01580	The FOS shall provide a directive that allows a user to execute a standard UNIX shell command.		FUI-2040B

F-FUI-01600	The FOS shall provide the capability to specify the type of screen snap to perform, which includes: a. snap to a printer b. snap to a file		FUI-2020B
F-FUI-01605	The FOS shall provide the capability to snap a window.		FUI-2020B
F-FUI-01610	The FOS shall provide the capability to specify the color intensities for the real-time windows.		FUI-2020B
F-FUI-01615	The FOS shall provide the capability to specify the colors for non real-time windows.	The selection of colors will be from a predefined palette as defined in the ECS User Interface Style Guide.	FUI-2020B
F-FUI-01620	The FOS shall provide the capability to select the font styles to be used from a predefined selection.		FUI-2020B
F-FUI-02100	The FOS shall allow a quick message to contain a maximum of 240 characters.		FUI-2140B
F-FUI-02202	The FOS shall allow users to delete files from their local storage area.		FUI-2025B
F-FUI-02205	The FOS shall allow the user to request files to be sent from other FOS user station or server.		FUI-2025B
F-FUI-02210	The FOS shall allow the user to select files from available categories.		FUI-2025B
F-FUI-02215	The FOS shall provide a find capability for selecting files.	The find capability allows the user to type in text, and highlights the closest alphabetic candidate.	FUI-2025B

F-FUI-02220	The FOS shall provide a method to select multiple files to be sent to multiple destinations.		FUI-2025B
F-FUI-02225	The FOS shall provide a view of selected files to be sent.		FUI-2025B
F-FUI-02230	The FOS shall provide a list of candidate destinations from which to select the destinations for the file transfer.		FUI-2025B
F-FUI-02235	The FOS shall allow the user to deselect files that were selected.		FUI-2025B
F-FUI-02240	The FOS shall provide a notification to the user that: a. a file transfer is in progress b. a file transfer has been completed c. a file transfer error has occurred		FUI-2025B
F-FUI-02315	The FOS shall allow the user to pause the replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	EDOS-2000B
F-FUI-02315	The FOS shall allow the user to pause the replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	TLM-2190B
F-FUI-02320	The FOS shall allow the user to resume the paused replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	EDOS-2000B
F-FUI-02320	The FOS shall allow the user to resume the paused replay data sequence.	Replay data includes telemetry, NCC UPD Messages, and EDOS CODA Reports.	TLM-2190B
F-FUI-02325	The FOS shall provide the user the capability to reset the begin time when the replay is in pause mode.		EDOS-2000B

F-FUI-02325	The FOS shall provide the user the capability to reset the begin time when the replay is in pause mode.		TLM-2190B
F-FUI-02330	The FOS shall provide a visual indication of the location of the replay data. This display will include: a. start time b. stop time c. position of current time		EDOS-2000B
F-FUI-02330	The FOS shall provide a visual indication of the location of the replay data. This display will include: a. start time b. stop time c. position of current time		TLM-2190B
F-FUI-02335	The FOS shall provide the user a reset capability that will reset the replay time to the last established begin time.		EDOS-2000B
F-FUI-02335	The FOS shall provide the user a reset capability that will reset the replay time to the last established begin time.		TLM-2190B
F-FUI-02600	The FOS shall provide the user a palette of available widgets from which the user may dynamically build a real-time display.		FUI-2030B
F-FUI-02600	The FOS shall provide the user a palette of available widgets from which the user may dynamically build a real-time display.		FUI-2110B

F-FUI-02635	The FOS shall allow the user to modify an existing real-time display definition.		FUI-2030B
F-FUI-02635	The FOS shall allow the user to modify an existing real-time display definition.		FUI-2110B
F-FUI-02700	The FOS shall allow the user to browse on-line help documentation.		FUI-2150B
F-FUI-02840	The FOS shall provide a user the capability to print existing procedures.		FUI-2050B
F-FUI-02860	The FOS shall provide a user the capability to request validation of procedures.	Procedures will be validated by the Command Management Subsystem. Validation status, including all errors detected, will be returned to the FUI Subsystem and displayed to the user.	FUI-2050B
F-FUI-02920	The FOS shall provide the capability to create a custom report template composed of the following information: a. ASCII files b. off-line analysis products c. screen snaps d. blocks of descriptive text e. other routine reports		ANA-2060B
F-FUI-02950	The FOS shall provide the capability to save a report template.		ANA-2060B

F-FUI-02955	The FOS shall provide the capability to modify an existing report template.		ANA-2060B
F-FUI-02960	The FOS shall provide the capability to delete a report template.		ANA-2060B
F-FUI-02970	The FOS shall provide the capability to accept report generation requests.		ANA-2060B
F-FUI-02980	The FOS shall provide the capability to insert a specified off-line analysis product into a report.	An off-line analysis product is either 1) a snapshot of a table or graph produced by an analysis request or 2) an analysis report.	ANA-2060B
F-FUI-02990	The FOS shall provide the capability to insert predefined blocks of text into a report.		ANA-2060B
F-FUI-02991	The FOS shall provide the capability to insert routine reports into a report.		ANA-2060B
F-FUI-02995	The FOS shall provide the capability to save a completed report.		ANA-2060B
F-FUI-03000	The FOS shall provide the capability to initiate the printing of a completed report.		ANA-2060B
F-FUI-03005	The FOS shall provide the capability to initiate the report browser/editor with a completed report.		ANA-2060B
F-FUI-03025	The FOS shall provide the capability to display a list of existing report templates.		ANA-2060B
F-FUI-03030	The FOS shall provide the capability to display a list of existing reports.		ANA-2060B

F-FUI-03035	The FOS shall provide the capability to initiate the report template builder with a template selected from the template list.		ANA-2060B
F-FUI-03040	The FOS shall provide the capability to initiate the report generator with a template selected from the template list.		ANA-2060B
F-FUI-03045	The FOS shall provide the capability to select a report from the report list for browsing or editing.		ANA-2060B
F-FUI-03050	The FOS shall provide the capability to display an existing report.		ANA-2060B
F-FUI-03055	The FOS shall provide the capability to print an existing report.		ANA-2060B
F-FUI-03060	The FOS shall provide the capability to edit an existing report.		ANA-2060B
F-FUI-03061	The FOS shall provide the capability to save an existing report.		ANA-2060B
F-FUI-04050	The FOS shall provide the capability to specify mission schedule access permissions on a timeline display.		PAS-2035B
F-FUI-04090	The FOS shall provide the capability to display the start and end times of the Detailed Activity Schedule on the timeline display.		PAS-2200B
F-FUI-04100	The FOS shall provide the capability to highlight activities that violate hard and soft constraints on the timeline display.		PAS-2050B

F-FUI-04130	The FOS shall provide the capability to display the time period that a load is valid for uplink on the timeline display.		PAS-2110B
F-FUI-04140	The FOS shall provide the capability to display detailed information about activities and events selected from the timeline display.		PAS-2030B
F-FUI-04280	The FOS shall provide the capability to display the limit of orbit data from the FDF on the timeline.		PAS-2030B
F-FUI-05105	The FOS shall provide an authorized user the capability to enter table data into a template using the data from an existing table load.		CMS-2040B
F-FUI-05200	The FOS shall allow an authorized user to enter RTS data that will be used to generate an RTS load.		CMS-2170B
F-FUI-05205	The FOS shall provide an authorized user the capability to request the generation of an RTS load.		CMS-2170B
F-FUI-05215	The FOS shall notify the requester when an RTS load has been successfully generated.		CMS-2170B
F-FUI-05340	The FOS shall provide a user the capability to print a ground script with expanded procedures.		CMD-2010B
F-FUI-05400	The FOS shall provide a user the capability to display the command-to-memory map of an ATC buffer.		CMS-2100B
F-FUI-05500	The FOS shall provide a user the capability to display the map of the RTS buffers.		CMS-2180B

F-FUI-05605	The FOS shall provide a user the capability to generate a load uplink directive for a selected load.	The Planning and Scheduling and CMS subsystems generate the appropriate load uplink directives as part of the scheduling process. This scheduling procedure is available to any authorized user, not just the CAC. Load uplink directives will normally be placed into procedures to direct the uplink.	CMD-2050B
F-FUI-05605	The FOS shall provide a user the capability to generate a load uplink directive for a selected load.	The Planning and Scheduling and CMS subsystems generate the appropriate load uplink directives as part of the scheduling process. This scheduling procedure is available to any authorized user, not just the CAC. Load uplink directives will normally be placed into procedures to direct the uplink.	CMS-2060B
F-FUI-05605	The FOS shall provide a user the capability to generate a load uplink directive for a selected load.	The Planning and Scheduling and CMS subsystems generate the appropriate load uplink directives as part of the scheduling process. This scheduling procedure is available to any authorized user, not just the CAC. Load uplink directives will normally be placed into procedures to direct the uplink.	CMS-2190B
F-FUI-05705	The FOS shall provide the capability for the user to input the data needed to build the load initiate command.		CMS-2040B
F-FUI-05705	The FOS shall provide the capability for the user to input the data needed to build the load initiate command.		CMS-2060B

F-FUI-05705	The FOS shall provide the capability for the user to input the data needed to build the load initiate command.		CMS-2090B
F-FUI-05705	The FOS shall provide the capability for the user to input the data needed to build the load initiate command.		CMS-2170B
F-FUI-05710	The FOS shall provide the capability to restrict load generation based on the user's group.	User's group is define as instrument team member or flight operations team member.	CMS-2040B
F-FUI-05710	The FOS shall provide the capability to restrict load generation based on the user's group.	User's group is define as instrument team member or flight operations team member.	CMS-2060B
F-FUI-05710	The FOS shall provide the capability to restrict load generation based on the user's group.	User's group is define as instrument team member or flight operations team member.	CMS-2090B
F-FUI-05710	The FOS shall provide the capability to restrict load generation based on the user's group.	User's group is define as instrument team member or flight operations team member.	CMS-2170B
F-FUI-05725	The FOS shall provide the capability to ingest binary microprocessor and flight software load contents.		CMS-2060B
F-FUI-05730	The FOS shall provide the capability to ingest ASCII RTS load contents.	ASCII table load contents may be ingested from external facilities such as an SDVF.	CMS-2170B
F-FUI-06115	The FOS shall allow a user to resume a suspended procedure.		FUI-2060B
F-FUI-06120	The FOS shall allow multiple local procedures to execute simultaneously.		FUI-2060B

F-FUI-06130	The FOS shall provide a display that allows a user to monitor the execution of a non-command procedure invoked from the user's workstation.	This display is activated when the non-command procedure is invoked. A non-command procedure is one that contains no spacecraft or instrument commands. command procedures can only be executed by a user with command authority and are merged with the currently executing ground script. Users may monitor the execution of a command procedure via the Command Control Display or the Command Monitor Display (reference Section 9.1.6.3).	FUI-2060B
F-FUI-06135	The FOS shall provide a display that allows a user to control the execution of a non-command procedure invoked from the user's workstation.	This display, which is activated when the procedure is invoked, allows a user to suspend, resume, or terminate the non-command procedure. command procedures are merged with the ground script directives and are controlled via the Command Control Display (reference Section 9.1.6.3).	FUI-2060B
F-FUI-06200	The FOS shall provide an authorized user the capability to generate a command request that contains: a. a procedure to execute b. any instructions that the FOT should follow.		CMD-2005B
F-FUI-06205	The FOS shall provide an authorized user the capability to send a command request to the Ops Controller.		CMD-2005B

F-FUI-06210	The EOC shall notify the Ops Controller of pending command requests.		CMD-2005B
F-FUI-06215	The FOS shall display the status of the pending and accepted command requests. The status display shall contain: a. request Id b. request summary c. status (i.e., accepted, pending) d. originator e. date/time received f. date/time acted upon (accepted or rejected) g. instrument Id h. spacecraft Id	A pending status indicates that the command request has not been evaluated. An accepted status indicates that the command request has been approved. Once the CAC merges the command request with the ground script directives, the entry is removed from the status display.	CMD-2005B
F-FUI-06220	The FOS shall allow a user to display the contents of a command request.		CMD-2005B
F-FUI-06225	The FOS shall notify the originator when a command request is accepted.		CMD-2005B
F-FUI-06230	The FOS shall notify the originator when a command request is rejected. This notification shall contain the reason for the rejection.		CMD-2005B

F-FUI-06330	The FOS shall display the following verification status for command directives depending upon whether the corresponding verification mode is enabled: a. prerequisite state check pass/fail b. receipt of command at the spacecraft/instrument pass/fail (command verification)c. execution of the command by the spacecraft/instrument pass/fail (telemetry verification)		CMD-2010B
F-FUI-07100	The FOS shall allow the user to select an update rate from 1 to 60 seconds.		FUI-2030B
F-FUI-07120	The FOS shall allow the user to invoke quick analysis on the selected telemetry parameters.		FUI-2030B
F-FUI-07125	The FOS shall allow the user to pause the display.		FUI-2030B
F-FUI-07130	The FOS shall allow the user to resume the display.		FUI-2030B

F-FUI-07200	The FOS shall provide alphanumeric displays that are capable of displaying the following: a. the descriptor or mnemonic of a telemetry parameter b. the current state of a discrete telemetry parameter c. the current value of an analog telemetry parameter d. the current state of an analog telemetry parameter based on a range of predefined values e. whether data associated with a telemetry parameter is suspect (bad quality) f. whether data associated with a telemetry parameter is static g. whether an analog telemetry value has violated a range limit h. whether an analog telemetry value has violated a delta limit i. descriptive labels j. static descriptive text k. horizontal and vertical separator lines l. Universal Time Coordinated (UTC) m. spacecraft time n. current orbit number o. data source (real-time, replay, simulated) p. current major/minor frame counts q. current telemetry format r. current telemetry rate s. spacecraft Id		FUI-2030B

| F-FUI-07200 | The FOS shall provide alphanumeric displays that are capable of displaying the following:

a. the descriptor or mnemonic of a telemetry parameter

b. the current state of a discrete telemetry parameter

c. the current value of an analog telemetry parameter

d. the current state of an analog telemetry parameter based on a range of predefined values

e. whether data associated with a telemetry parameter is suspect (bad quality)

f. whether data associated with a telemetry parameter is static

f. whether an analog telemetry value has violated a range limit

h. whether an analog telemetry value has violated a delta limit

i. descriptive labels

j. static descriptive text

k. horizontal and vertical separator lines

l. Universal Time Coordinated (UTC)

m. spacecraft time

n. current orbit number

o. data source (real-time, replay, simulated)

p. current major/minor frame counts

q. current telemetry format

r. current telemetry rate

s. spacecraft Id | | TLM-2070B |

F-FUI-07200	The FOS shall provide alphanumeric displays that are capable of displaying the following: a. the descriptor or mnemonic of a telemetry parameter b. the current state of a discrete telemetry parameter c. the current value of an analog telemetry parameter d. the current state of an analog telemetry parameter based on a range of predefined values e. whether data associated with a telemetry parameter is suspect (bad quality) f. whether data associated with a telemetry parameter is static g. whether an analog telemetry value has violated a range limit h. whether an analog telemetry value has violated a delta limit i. descriptive labels j. static descriptive text k. horizontal and vertical separator lines l. Universal Time Coordinated (UTC)m. spacecraft time m. current orbit number n. data source (real-time, replay, simulated) o. current major/minor frame counts p. current telemetry format q. current telemetry rate r. spacecraft Id		TLM-2100B

F-FUI-07215	The FOS shall allow the user to change a telemetry parameter's label from descriptor to mnemonic.		FUI-2030B
F-FUI-07220	The FOS shall allow the user to change a telemetry parameter's label from mnemonic to descriptor.		FUI-2030B
F-FUI-07245	The FOS shall allow the user to change the display of selected telemetry values to any of the following formats: a. converted b. decoded c. raw	The raw format displays the bit string extracted from the telemetry packet. The decoded format displays the integer representation of the raw value. The converted format displays the value of the parameter after its decoded value has been subjected to a parameter-specific conversion function (e.g., apply a calibration curve to the decode value).	FUI-2030B
F-FUI-07250	The FOS shall allow the user to change the display representation of selected telemetry values to one of the following: a. formatted b. octal c. hex d. binary	A formatted representation will either be a string, decimal integer, or floating-point number based upon the parameter type and the specified format.	FUI-2030B
F-FUI-07255	The FOS shall prevent a change in the displayed telemetry format when a non-supported format for a particular parameter is requested (i.e., when a decoded format is requested for a ground telemetry parameter).		FUI-2030B

F-FUI-07300	The FOS shall provide graphs that are capable of displaying the following:		ANA-2060B
	a. up to six telemetry values vs. time, or		
	b. up to six telemetry values vs. a telemetry value		
	c. the high and low, red and yellow limits of the telemetry parameters as lines(dotted, dashed or solid)		
	d. telemetry values as a symbol(optional)		
	e. lines between telemetry parameters (optional) shall be displayed as dotted, dashed or solid		
	f. axis lines (displayed or not)		
	g. axis labels		
	h. axis scales		
	i. axis scale labels		
	j. optional grid lines (dotted, dashed or solid)		
	k. title		
	l. current range of time displayed		
	m. total range of time available		
F-FUI-07305	The FOS shall allow the user to select up to six telemetry parameters to graph.		ANA-2060B
F-FUI-07310	The FOS shall allow the user to plot data from different times and/or different data sources on a two dimensional graph.		ANA-2060B

F-FUI-07315	The FOS shall display the minimum, current and maximum values of a selected telemetry parameter within the current visible area of the graph.		ANA-2060B
F-FUI-07320	The FOS shall allow the user to select a telemetry parameter from the graph utilizing a pointing device.		ANA-2060B
F-FUI-07325	The FOS shall allow the user to select a range of times or X values, from the total range of time or X values available, in which to view the data.		ANA-2060B
F-FUI-07330	The FOS shall have the capability to capture all occurrences of a parameter between screen updates, and then display the captured data at the next update.		TLM-2000B
F-FUI-07330	The FOS shall have the capability to capture all occurrences of a parameter between screen updates, and then display the captured data at the next update.		TLM-2010B
F-FUI-07330	The FOS shall have the capability to capture all occurrences of a parameter between screen updates, and then display the captured data at the next update.		TLM-2070B
F-FUI-07330	The FOS shall have the capability to capture all occurrences of a parameter between screen updates, and then display the captured data at the next update.		TLM-2190B
F-FUI-07345	The FOS shall allow the user to select a line style with which a telemetry parameter is displayed.		ANA-2060B
F-FUI-07360	The FOS shall allow the user to specify the grid line style (dotted, dashed or solid).		ANA-2060B

F-FUI-07365	The FOS shall allow the user to specify the grid granularity.		ANA-2060B
F-FUI-07370	The FOS shall allow the user to specify which high and low, red and yellow limit lines to display.		ANA-2060B
F-FUI-07375	The FOS shall allow the user to specify limit line style (dotted, dashed, or solid).		ANA-2060B
F-FUI-07388	The FOS shall allow the user to specify the axis labels.		ANA-2060B
F-FUI-07394	The FOS shall print graphs in either landscape or portrait orientation.		ANA-2060B
F-FUI-07396	The FOS shall allow the user to print up to 4 graphs per page.		ANA-2060B
F-FUI-07400	The FOS shall provide tables that are capable of displaying the following:a. up to 50 discrete and analog real-time telemetry values over a specified time intervalb. the associated time at each intervalc. the descriptor or mnemonic of each telemetry valued. titlee. current range of time displayed		ANA-2060B
F-FUI-07415	The FOS shall provide the user with the capability to specify whether the telemetry value is represented by its mnemonic or descriptor.		ANA-2060B
F-FUI-07425	The FOS shall provide the user with the capability to capture all occurrences of a telemetry value between screen updates, and then display the captured data at the next screen update.		TLM-2000B

F-FUI-07425	The FOS shall provide the user with the capability to capture all occurrences of a telemetry value between screen updates, and then display the captured data at the next screen update.		TLM-2010B
F-FUI-07425	The FOS shall provide the user with the capability to capture all occurrences of a telemetry value between screen updates, and then display the captured data at the next screen update.		TLM-2070B
F-FUI-07425	The FOS shall provide the user with the capability to capture all occurrences of a telemetry value between screen updates, and then display the captured data at the next screen update.		TLM-2190B
F-FUI-07600	The FOS shall display the following PDB information about discrete and analog telemetry parameters:a. the descriptorb. the mnemonicc. the valid states of a discrete telemetry valued. the conversion polynomial of an analog telemetry valuee. the delta limits for a telemetry valuef. the high and low, red and yellow limits for a telemetry valueg. the cycles from which the telemetry value is extractedh. the telemetry values on which a derived telemetry value is basedi. parameter Idj. spacecraft Id		TLM-2100B

F-FUI-07600	The FOS shall display the following PDB information about discrete and analog telemetry parameters:a. the descriptorb. the mnemonicc. the valid states of a discrete telemetry valued. the conversion polynomial of an analog telemetry valuee. the delta limits for a telemetry valuef. the high and low, red and yellow limits for a telemetry valueg. the cycles from which the telemetry value is extractedh. the telemetry values on which a derived telemetry value is basedi. parameter Idj. spacecraft Id		TLM-2160B
F-FUI-07605	The FOS shall provide the user with the capability to display up to 50 telemetry parameters and their associated data in an Info window.		TLM-2100B
F-FUI-07605	The FOS shall provide the user with the capability to display up to 50 telemetry parameters and their associated data in an Info window.		TLM-2160B
F-FUI-07720	The FOS shall provide one status window for each logical string connection.		SYS-2020B
F-FUI-09112	The FOS shall provide the capability to specify a parameter for input to an algorithm when building an analysis request for historical data analysis. Algorithms can be one of the following:a. user-definedb. system supplied		ANA-2040B
F-FUI-09115	The FOS shall provide the capability for an analysis request to be submitted using the standing order process.	Standing orders are described in section 9.1.9.3.	ANA-2010B

F-FUI-09140	The FOS shall provide the capability to display a request queue of up to 10 submitted analysis requests.	The request queue will display the following data for each request:_a. request name _b. estimated completion time of requests gathering archived/local data _c. estimated completion time for the decom processing of reqeusts (if applicable)	ANA-2120B
F-FUI-09145	The FOS shall provide the capability to assign priority to a pending request in the request queue.	Requests with the same priority will be processed on FIFO basis.	ANA-2120B
F-FUI-09150	The FOS shall provide the capability to delete a request from the request queue display.		ANA-2120B
F-FUI-09160	The FOS shall provide the capability to select output products for a completed analysis request.	The output products that can be selected are graphs and tables.	ANA-2120B
F-FUI-09200	The FOS shall provide the capability to display off-line analysis results in the following output views:a. graph (see 9.1.7.3 for graph requirements)b. table (see 9.1.7.4 for table requirements)c. analysis report (see section 9.1.2.9 for report requirements)		ANA-2060B
F-FUI-09205	The FOS shall provide the capability to save analysis results.		ANA-2090B
F-FUI-09210	The FOS shall provide the capability to print analysis results.		ANA-2090B
F-FUI-09215	The FOS shall provide the capability to save analysis output view formats.		ANA-2090B

F-FUI-09220	The FOS shall provide the capability to modify analysis output view formats. Format options include the following:a. engineering unitsb. raw valuesc. time		ANA-2090B
F-FUI-09225	The FOS shall provide the capability to use existing data sets as input for analysis requests.		ANA-2090B
F-FUI-09300	The FOS shall accept and process analysis requests containing at a minimum:a. date/time to start processing the requestb. date/time to stop processing the requestc. request interval (every n passes, every n orbits, every n hours, every n days, every n weeks, every n months)d. telemetry analysis requestse. report templatesf. request nameg. name of the person who submitted the request		ANA-2010B
F-FUI-09305	The FOS shall generate telemetry analysis requests and/or report requests at the specified request interval from the start date to the stop date.		ANA-2010B
F-FUI-09310	The FOS shall receive the associated telemetry analysis data sets, at each request interval, and will initiate the generation of the output products based on the telemetry analysis and/or report requests.		ANA-2010B
F-FUI-09315	The FOS shall produce status for executing standing orders.		ANA-2010B

F-FUI-09350	The FOS standing order browser shall provide information on standing orders including, at a minimum:a. request nameb. next interval start timec. standing order status (i.e. active, halted, processing, completed)d. name of person who submitted the request		ANA-2010B
F-FUI-09355	The FOS standing order browser shall provide the capability to sort the standing orders by the following criteria including at a minimum:a. request nameb. next interval start timec. standing order statusd. name of person who submitted request		ANA-2010B
F-FUI-09360	The FOS shall allow the user to view the results of a completed standing order.		ANA-2010B
F-FUI-09363	The FOS shall allow an authorized user to modify the standing order's interval.		ANA-2010B
F-FUI-09365	The FOS shall enable an authorized user to suspend a standing order.		ANA-2010B
F-FUI-09370	The FOS shall enable an authorized user to resume a standing order.		ANA-2010B
F-FUI-09375	The FOS shall enable an authorized user to delete a standing order.	The author, CAC, or PI/TL would be the only users authorized to suspend, resume or delete a standing order.	ANA-2010B
F-FUI-09410	The FOS shall provide the following output views for real-time analysis requests:a. alphanumeric telemetryb. real-time graphc. real-time tabled. info window	Requirements for alphanumeric telemetry displays are in 9.1.7.2, real-time graphs in 9.1.7.3 and real-time tables in 9.1.7.4.	ANA-2120B

F-FUI-09415	The FOS shall provide the capability to build an analysis request on real-time data that contain the following:a. spacecraft Idb. spacecraft subsystem/instrumentc. telemetry parametersd. real-time output viewse. output view formats		ANA-2120B
F-FUI-09500	The FOS shall provide the capability to register an algorithm that contains the following:a. algorithm nameb. algorithm object file namec. output parameter named. input parameters		ANA-2040B
F-FUI-09510	The FOS shall provide the capability to select a registered algorithm per selected parameters when building an analysis request.		ANA-2040B
F-FUI-09515	The FOS shall provide the capability to select valid discrete and analog values to be used per algorithm.		ANA-2040B
F-FUI-09530	The FOS shall notify the operator of changes in spacecraft or ground telemetry states which pertain to the analysis of spacecraft safe hold mode stability.		CONT-2010B
F-FUI-09640	The FOS shall provide the results of an event history request in the event history display.		EVT-2020B
F-FUI-09645	The FOS shall visually alert a user that an event has occurred.		EVT-2000B
F-FUI-09650	The FOS shall allow the user to activate and deactivate the generation of auditory alarms associated with the occurrence of events.		EVT-2030B

F-FUI-09655	The FOS shall require that an operator acknowledge each event that is defined as an alarm event.	If the generation of auditory alarms has been deactivated by the operator, then the operator does not need to acknowledge the alarm event.	EVT-2030B
F-FUI-09663	The FOS shall provide the capability to configure an events display as either a local events display or a global events display.		EVT-2000B
F-FUI-09665	The FOS shall provide the capability for a user to display both a local events display and a global events display.		EVT-2000B
F-FUI-09700	The FOS shall provide the user with the capability to request event history data.		EVT-2020B
F-FUI-09705	The event history request shall include filtering of events by:a. time periodb. spacecraft Idc. instrumentd. spacecraft subsysteme. event message type		EVT-2020B
F-FUI-12310	The FOS shall allow a user to select a replay rate from 1 kilobit per second up to 150 kilobits per second.		TLM-2190B
F-FUI-14005	The FOS shall provide notification when a user attempts to schedule science data collection activities that cause overflow of any of the SSR buffers.	Notification via timeline display.	CONT-2030B
F-FUI-17200	The FOS shall be capable of displaying master/major cycle count.		TLM-2000B
F-FUI-17265	The FOS shall provide the capability to display the inhibit flags.		CMS-2180B

F-PAS-00100	The FOS shall provide the capability for an authorized user to view any portion of the mission schedule.		PAS-2030B
F-PAS-00103	The FOS shall provide the capability for an authorized user to restrict user privileges for updating portions of the mission schedule.	Privileges will include read, write, update, and delete and they can be defined for each spacecraft and instrument resource. They can also be defined for specific time periods.	PAS-2035B
F-PAS-00105	The FOS shall provide the capability for an authorized user to make updates to a mission schedule for a specific spacecraft.		PAS-2020B
F-PAS-00138	The FOS shall make predicted orbit data and planning aids for a specific spacecraft available to authorized users.	DMS has responsibility for this requirement.	FDF-2000B
F-PAS-00140	The FOS shall provide the capability to notify the user when he attempts to schedule an activity beyond the limit of the predicted orbit data provided by the FDF.	Any activities requested beyond this limit can be scheduled but will not be associated with any particular spacecraft orbit or ground trace. The FOS will not be propagating orbit data beyond what the FDF provides.	PAS-2020B
F-PAS-00153	The FOS shall notify the user when an activity in a mission schedule is affected by updated orbit data from FDF.		PAS-2020B
F-PAS-00160	The FOS shall provide the capability for an authorized user to make 'what-if' changes without affecting the mission schedule for a specific spacecraft.	'What-if' changes will allow planners to study alternate mission schedules in an off-line and non-interfering mode.Capabilities like constraint checking that are available for mission schedules will be available in the 'what-if' mode.	PAS-2190B

F-PAS-00165	The FOS shall provide the capability for an authorized user to discard 'what-if' changes without affecting the mission schedule for a specific spacecraft.		PAS-2190B
F-PAS-00170	The FOS shall provide the capability for an authorized user to save 'what-if' changes to the mission schedule without affecting the mission schedule for a specific spacecraft.	These changes would be set aside and would not be incorporated. This capability would allow a planner to save a set of changes he has not finished so that he could turn off his machine.	PAS-2190B
F-PAS-00175	The FOS shall provide the capability for an authorized user to retrieve previously saved 'what-if' changes without affecting the mission schedule for a specific spacecraft.		PAS-2190B
F-PAS-00180	The FOS shall provide the capability for an authorized user to delete previously saved 'what-if' changes without affecting the mission schedule for a specific spacecraft.		PAS-2190B
F-PAS-00185	The FOS shall provide the capability for an authorized user to incorporate 'what-if' changes to the mission schedule for a specific spacecraft.		PAS-2190B
F-PAS-00195	The FOS shall prevent a user from inputting 'what-if' requests to any portion of a mission schedule that he does not have update access for.		PAS-2190B
F-PAS-00335	The FOS shall provide the capability for an authorized user to delete an activity from the mission schedule.		PAS-2020B

F-PAS-00340	The FOS shall provide the capability for an authorized user to search for and find an activity on the mission schedule by: its name; or its identifier; or the time.		PAS-2020B
F-PAS-00355	The FOS shall provide the capability for an authorized user to identify activities on the mission schedule that prevent the scheduling of a specific activity.	This will be used to do impact scheduling. Planners may want to force an activity into the mission schedule. They will be able to insert it into the mission schedule and determine the other activities that are in conflict.	PAS-2020B
F-PAS-00365	The FOS shall provide the capability for an authorized user to collect deleted activities in an activity list.	This will allow planners to reschedule deleted activities. The list of deleted activities is only available for the current session.	PAS-2020B
F-PAS-00420	The FOS shall provide read-only access to non-modifiable parameters for an activity that is scheduled .	Parameters of this type will be able to be modified through the controlled process provided by the Data Management Subsystem.	PAS-2020B
F-PAS-00425	The FOS shall provide the capability for an authorized user to create an association between multiple activities or mission events.	This will allow planners to coordinate observations involving multiple instruments and/or in-situ collection activities.	PAS-2020B
F-PAS-00510	The FOS shall provide the capability for an authorized user to schedule activities between a start and end time based on a Baseline Activity Profiles (BAP).	This will allow planners to use BAPs to schedule activities. Start and end times will be specified so that the BAP is not propagated out to infinity.	PAS-2020B
F-PAS-00900	The FOS shall provide the capability to identify any activity in the mission schedule that causes a soft constraint violation.		PAS-2050B

F-PAS-00905	The FOS shall provide the capability to identify any activity in the mission schedule that causes a hard constraint violation.		PAS-2050B
F-PAS-00910	The FOS shall provide the capability to determine the constraints that an activity is violating.		PAS-2050B
F-PAS-00915	The FOS shall model the spacecraft power subsystem.		PAS-2030B
F-PAS-00920	The FOS shall model spacecraft data volume.		CONT-2030B
F-PAS-00920	The FOS shall model spacecraft data volume.		PAS-2030B
F-PAS-00925	The FOS shall be able to determine when the sun is in the field of view limits of an instrument.		PAS-2030B
F-PAS-00940	The FOS shall be able to model state and mode changes in an instrument.		PAS-2035B
F-PAS-00945	The FOS shall be able to determine when an activity violates an 'order' constraint.	An 'order' constraint is one which states that activities must be scheduled in a certain order.	PAS-2050B
F-PAS-00950	The FOS shall be able to determine when an activity violates a time spacing constraint.	A time spacing constraint is one which states that two activities must be separated by a minimum time interval.	PAS-2050B
F-PAS-01200	The FOS shall provide the capability to accept a user request specifying an uplink window for a load.		PAS-2110B
F-PAS-01205	The FOS shall verify the existence of a load specified in the uplink request.		PAS-2110B
F-PAS-01210	The FOS shall verify a load is valid over the time period specified in the uplink request.		PAS-2110B

F-PAS-01215	The FOS shall use an uplink window request to schedule the uplink of a load.		PAS-2110B
F-PAS-01220	The FOS shall provide the capability to restrict user scheduling functionality based on the user's group.	User's group is defined as instrument team member or flight operations team member.	PAS-2110B
F-PAS-01300	The FOS shall provide the capability for an authorized user to generate a graphical timeline plot of a mission schedule.		PAS-2030B
F-PAS-01305	The FOS shall provide the capability for an authorized user to generate a text hardcopy of the scheduling constraint event messages.		PAS-2030B
F-PAS-01310	The FOS shall provide the capability for an authorized user to generate a text hardcopy that summarizes a mission schedule.	This report will be a textual list of activity names, scheduled times, parameters, etc.	PAS-2030B
F-PAS-10305	The FOS shall provide the AM-1 mission schedule to the ASTER ICC as specified in the ASTER ICC ICD.		ASTR-2000B
F-PAS-10605	The FOS shall provide the capability to determine the number of CERES scans between sunrise and sunset events for a given satellite orbit.		PAS-2035B
F-PAS-10623	The FOS shall provide the capability for an authorized user to generate MISR Local Mode visibility mission events.		PAS-2035B
F-PAS-10625	The FOS shall provide the capability to determine MISR access to local mode targets.	This is intended to be displayed on the timeline as an event.	PAS-2035B

F-PAS-10700	The FOS shall provide the capability to identify valid uplink windows for MISR microprocessor loads.	There will be a constraint in the database that limits these windows to nighttime only.	PAS-2110B
F-PAS-10705	The FOS shall display the valid uplink window for the MISR microprocessor load		PAS-2110B
F-RMS-00140	The EOC shall provide an IST operator access to replay data.		TLM-2190B
F-RMS-00150	The EOC shall provide an IST operator access to simulated data.		TLM-2000B
F-RMS-00160	The EOC shall provide multiple IST operators access to the same data streams.		TLM-2040B
F-RMS-00170	The EOC shall provide a single IST operator access to multiple data streams.	The number of streams a single IST operator is allowed to access at one time will not be restricted by the RMS software.	TLM-2070B
F-RMS-03060	The EOC shall make ground configuration and component statuses available for display to the IST operators.		SYS-2030B
F-TLM-00535	The FOS shall be capable of continuously decommutating real-time spacecraft housekeeping telemetry at rates up to 50 Kbps per spacecraft.		TLM-2010B
F-TLM-00540	The FOS shall be capable of continuously decommutating real-time instrument housekeeping telemetry at rates up to 50 Kbps per spacecraft.		TLM-2010B

F-TLM-00810	The FOS shall provide decommutation of a given location of a given packet to be associated with any one of various parameter mnemonics, depending on the value of a discrete telemetry context switch parameter.	The context switch may be either a telemetered or derived discrete parameter.	TLM-2020B
F-TLM-00920	The FOS shall provide the capability to select an EU conversion algorithm based upon the value of an associated predefined discrete telemetry point.	This capability permits a context switched EU conversion. Up to sixteen (16) predefined switch ranges are available. The discrete may be either a decommutated or derived telemetry parameter.	TLM-2020B
F-TLM-00925	The FOS shall provide the capability for the user to select a predefined EU conversion algorithm.		TLM-2040B
F-TLM-00970	The FOS shall provide the capability for the user to adjust the predefined EU conversion algorithm coefficient values.	Changing of the coefficient values via user directive is temporary. Permanent alterations may be accommodated through changes in the coefficient values resident within the Project Data Base. Whenever a new set of limits is loaded, the data base defined values will be restored.	TLM-2040B
F-TLM-00985	The FOS shall allow specification of up to eight (8) different EU segments for each analog parameter.	A separate EU conversion can be specified for each segment.	TLM-2030B
F-TLM-00990	The FOS shall be capable of performing conversion of segmented EUs.	Segmented EU conversion will use the following equation: $y = C_0 + C_1X = C_2X^{**}2 = C_3X^{**}3$ where X is the decoded value, C_i is a data base defined coefficient, and y is the converted value.	TLM-2030B

F-TLM-01020	The FOS shall allow for the selection of a single boundary limit group from a limit set containing up to four groups of boundary limits per parameter.	Each boundary limit group is capable of accommodating red and yellow high/low limit values.	TLM-2090B
F-TLM-01025	The FOS shall provide the capability to select a boundary limit group based upon the value of an associated predefined discrete telemetry parameter.	This capability permits a context switched boundary group selection. Up to sixteen (16) predevined switch ranges are available. The discrete may be either a decommutated or derived telemetry parameter.	TLM-2080B
F-TLM-01030	The FOS shall provide the capability for the user to select a predefined boundary limit group.		TLM-2090B
F-TLM-01035	The FOS shall use high and low limit values in raw or EU counts as specified for decommutated and derived parameters when limits have been defined.	Limits for both decommutated and derived parameters are specified through the Project Data Base.	TLM-2060B
F-TLM-01035	The FOS shall use high and low limit values in raw or EU counts as specified for decommutated and derived parameters when limits have been defined.	Limits for both decommutated and derived parameters are specified through the Project Data Base.	TLM-2080B
F-TLM-01120	The FOS shall notify the user when a parameter incurs a delta limit violation.		TLM-2090B
F-TLM-01130	The FOS limit notification shall be reported when a telemetry point exceeds a limit, when the point comes back in limits, and every Nth occurrence (based upon the limit sense interval).		TLM-2110B

F-TLM-01145	The FOS shall be capable of reporting limit violations based upon a predefined limit sense interval for each normal and derived parameter that has defined limits.	The limit sense interval modifies only the notification reporting rate and has no affect on limit checking and indicator updates. The FOS will use the predefined limit interval values as the initial default limit notification period.	TLM-2080B
F-TLM-01145	The FOS shall be capable of reporting limit violations based upon a predefined limit sense interval for each normal and derived parameter that has defined limits.	The limit sense interval modifies only the notification reporting rate and has no affect on limit checking and indicator updates. The FOS will use the predefined limit interval values as the initial default limit notification period.	TLM-2090B
F-TLM-01145	The FOS shall be capable of reporting limit violations based upon a predefined limit sense interval for each normal and derived parameter that has defined limits.	The limit sense interval modifies only the notification reporting rate and has no affect on limit checking and indicator updates. The FOS will use the predefined limit interval values as the initial default limit notification period.	TLM-2160B
F-TLM-01150	The FOS shall provide notification of any out-of-limits status every Nth sample occurrence, where N is defined as the limit sense interval for that parameter.		TLM-2080B
F-TLM-01150	The FOS shall provide notification of any out-of-limits status every Nth sample occurrence, where N is defined as the limit sense interval for that parameter.		TLM-2090B

F-TLM-01155	The FOS shall provide the capability of disabling (suppressing) or enabling notification messages concerning limits for all parameters.	Although the display of notification messages may be suppressed, the messages will continue to be stored or logged. The FOSdefault limit condition reporting mode will be 'enabled'.	TLM-2080B
F-TLM-01210	The FOS shall provide the user the capability of changing limit values, delta limit values, and limit sense intervals.	Changing of the limit values via user directive is temporary. Permanent alterations may be accommodated through changes in the limit values resident within the Project Data Base. Whenever a new set of limits is loaded, the data base defined limits and sense intervals will be restored.	TLM-2080B
F-TLM-01210	The FOS shall provide the user the capability of changing limit values, delta limit values, and limit sense intervals.	Changing of the limit values via user directive is temporary. Permanent alterations may be accommodated through changes in the limit values resident within the Project Data Base. Whenever a new set of limits is loaded, the data base defined limits and sense intervals will be restored.	TLM-2110B
F-TLM-01215	The FOS shall provide the user the capability to access current limit values and delta limit values in both raw and engineering units.	Where conversions from engineering units to raw results in a non-unique value, the value will be disallowed and discarded.	TLM-2080B
F-TLM-01215	The FOS shall provide the user the capability to access current limit values and delta limit values in both raw and engineering units.	Where conversions from engineering units to raw results in a non-unique value, the value will be disallowed and discarded.	TLM-2110B
F-TLM-01220	The FOS shall allow adjustment of limit values only for those telemetry parameters that have predefined limit values.		TLM-2080B

F-TLM-01310	The FOS shall evaluate derived parameters based on specified, predefined equations.	The derived parameter algorithms will be obtained from telemetry data base definitions.	TLM-2060B
F-TLM-01315	The FOS shall use analog telemetry values, discrete telemetry values, constants, or other derived parameters to build new derived parameters.	The FOS telemetry data base will limit the number of input parameters for each derived parameter equation to six (6).The maximum number of derived parameters that may be processed at any given time will be determined for each mission.	TLM-2060B
F-TLM-01320	The FOS shall be capable of using either decoded or converted values when evaluating derived telemetry parameters.	The Telemetry parameter values used as inputs to the derived parameter equation will be specified as either decoded or converted via the telemetry database.	TLM-2060B
F-TLM-01355	The FOS shall allow individual derived parameter evaluations to be enabled or disabled.		TLM-2060B
F-TLM-01415	The FOS shall make available the status for every predefined telemetry parameter.		TLM-2060B
F-TLM-01425	The FOS shall make available, on a per-parameter basis, the following:a. last decommutated raw valueb. associated converted value (if applicable)c. limit range values (if applicable)d. limit sense intervale. no data available indicatorf. static/active indicatorg. quality status indicatorh. out-of-limits low indicators (if applicable)i. out-of-limits high indicators (if applicable)j. delta limit error indicatork. conversion error indicator		TLM-2060B

F-TLM-01630	The FOS shall be capable of processing stored housekeeping and engineering telemetry for analysis at twelve (12) times the real-time rate.	This requirement is derived from the fact that the FOS must be able to analyze twenty-four (24) hours of stored telemetry data within two (2) hours. This capability is used for off-line batch processing and when the immediate display of information is not necessary or desired (i.e. gathering statistics on a particular parameter over several weeks of stored telemetry data).	TLM-2190B
F-TLM-01635	The FOS shall be capable of processing stored housekeeping and engineering telemetry for display at rates up 150 Kbps.	This requirement permits the repid replay and display of stored telemetry, and may be useful during contact simulations.	TLM-2190B
F-TLM-01640	The FOS shall be able to replay and process the telemetry data at the real-time or at a user specified rate.		TLM-2190B
F-TLM-10125	The EOC shall be capable of receiving AM-1 housekeeping and AM-1 diagnostic telemetry data from both the I-channel and Q-channel simultaneously.	For example, the EOC will be able to accept telemetry with the I and Q channels in the following configurations:_2 - 16 kbps housekeeping or _1 -16 kbps housekeeping and _1 - 16 kbps diagnostic	TLM-2170B
F-TLM-10535	The FOS shall be capable of continuously decommutating real-time spacecraft housekeeping telemetry at a rate of 16 Kbps.		TLM-2010B
F-TLM-10540	The FOS shall be capable of continuously decommutating real-time instrument housekeeping telemetry at a rate of 16 Kbps.		TLM-2010B

F-TLM-10560	The FOS shall be capable of continuously decommutating real-time spacecraft health and safety telemetry at a rate of 1 Kbps.		TLM-2000B
F-TLM-10570	The FOS shall be capable of decommutating real-time spacecraft diagnostic telemetry at a rate of 1 Kbps.		TLM-2000B
F-TLM-10575	The FOS shall be capable of decommutating real-time instrument diagnostic telemetry at a rate of 1 Kbps.		TLM-2000B
F-TLM-10580	The FOS shall be capable of decommutating real-time spacecraft standby CTIU telemetry at a rate of 1 Kbps.		TLM-2000B
F-TLM-11320	The FOS shall provide the capability to process a maximum of fifty (50) AM-1 derived parameters at a given time.		TLM-2060B

Remote Access and Carry-Out File Transfer Test Procedure

Test Case No: SAS-2000B	

Test Configuration: See Appendix G

Test Support: One EOC user station, one remote server that emulates the FDF Real Time Attitude Determination System (RTADS), the Spacecraft Analysis System (SAS), and the Spacecraft Simulator (SSIM); remote access to the emulated RTADS/SAS/SSIM server from the EOC user station; login name and password for the emulated RTADS/SAS/SSIM server; emulated RTADS/SAS/SSIM data on the emulated RTADS/SAS/SSIM server; carry-out file at the EOC.

Test Case Description:

This test is designed to verify that an EOC user can remotely access RTADS, SAS, and SSIM data and send a carry-out file from the EOC to SAS. An EOC user Telnets to the emulated RTADS/SAS/SSIM server. The user then accesses emulated RTADS/SAS/SSIM server data, which appears on the EOC user station. The EOC user accesses an existing EOC carry-out file, which is sent to the SAS workstation using FTP.

Success Criteria:

This test is successful when an EOC user is able Telnet to the emulated RTADS/SAS/SSIM server from an EOC user station and access emulated RTADS/SAS/SSIM data; and the EOC sends a carry-out file to the emulated SAS.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	**EOC user station**: Log in to an EOC user station, using UNIX login procedure, by entering User Name and Password. Username: **\<user name\>** Password: ********	The login is accepted and several cmdtool windows appear.	
2.	**RTADS/SAS/SSIM Remote Access test follows.**	(No expected result/output; information only.)	

3.	**RTADS/SAS/SSIM workstation:** (optional) Login using UNIX login procedure, by entering User Name and Password Username: **\<user name\>** Password: ************	The login is accepted.	
4.	**RTADS/SAS/SSIM workstation:** (optional) Print or snap the contents of the RTADS/SAS/SSIM data by entering one of the following in a cmdtool window: %: **lp \<RTADS display data filename\>** or %: **snapframe**	Display data appear on the printer.	
5.	**EOC user station:** From a UNIX cmdtool window at the EOC user station, Telnet to the emulated RTADS/SAS/SSIM server: %: **telnet 155.157.100.117** ('muttly' server at Landover) login: **jrubenac** Password: ************	The remote login is accepted.	

6.	**EOC user station:** Access the directory containing the emulated RTADS/SAS/SSIM data on 'muttly' by entering the following in the same cmdtool window: muttly %: **cd /home/jrubenac/data/ FOS_Test_Data/ASTER** muttly %: **ls -l**	A list of files including the emulated RTADS/SAS/SSIM data file appears	
7.	**EOC user station:** Display the contents of the emulated RTADS/SAS/SSIM data by entering the following in the same cmdtool window: muttly %: **more ASTER_REQ_1997156001. txt**	The RTADS data appears on the user station: 'REQ1997156199ASTEOCAM1ASTSCHEDULE 001997156150000199715616000000000000001'	
8.	**EOC user station:** Terminate the Telnet session with the emulated RTADS/SAS/SSIM server by entering the following in the same cmdtool window: muttly %: **exit**	The cmdtool window indicates that the connection with the RTADS/SAS/SSIM server has been closed. A UNIX prompt indicating the EOC user station is host appears in the same cmdtool window.	
9.	**Carry-Out File Transfer test follows.**	(No expected result/output; information only.)	

10.	**EOC user station:**	A list of files including the emulated carry-out file appears.	
	List the directory containing a carry-out file at the EOC by entering the following in a cmdtool window:		
	%: **cd /fos/test/am1/datasets**		
	%: **ls -l**		
11.	**EOC user station:**	The carry-out file is printed.	
	Print the contents of the carry-out file by entering the following in the same cmdtool window:		
	%: **lp Con_Request_324.out**		
12.	**EOC user station:**	An 'ftp' prompt appears on the EOC user station.	
	Establish an FTP connection with the emulated SAS server by entering the following in the same cmdtool window.		
	%: **ftp 155.157.100.117** ('muttly' server at Landover)		
	Name: **jrubenac**		
	Password: ********		

13.	**EOC user station:**
	
	Send the carry-out file to the emulated SAS server via FTP by entering the following in the same cmdtool window.
	
	    ftp> **cd /home/jrubenac/data/FOS_Test_Data/COF**
	
	    ftp> **put Con_Request_324.out**
	
	(Wait for completion of file transfer.)
		Message appears indicating that the carry-out file has been sent.	

14.	**EOC user station:** Display the emulated SAS server directory containing the carry-out file just transferred by entering the following in the same cmdtool window: ftp> **ls -l**	A list of files including the carry-out file just transferred appears. The date/time of the carry-out file reflects the date/time of the transfer just completed.	
15.	**EOC user station:** Terminate the FTP session by entering the following in the same cmdtool window: ftp> **quit**	A UNIX prompt (%) appears in the cmdtool window.	
16.	End of test.		

ETE-2000B-Concurrent Ops/Performance

Test Case No.: ETE-2000

Test Configuration: Full ECS FOS Release B Hardware and Software Suite

Test Support: ACCT, SADC, VMSTAT, IOSTAT, TCPDUMP

Test Case Description: This testcase is designed to verify that the ECS can meet system performance requirements under peak operational loads executing system functionality. Specifically, perform a peak operational workload while key resource utilization remains below 50%.

The test will consist of eight contiguous parts. The first part of the test will be the FOS initialization. The DataServer, RealTimeServer and four UserStations will be initialized. The UNIX date command will be used to record WorkStation initialization times, the time required to connect to a string and times required to initialize tools and display pages. The second, fourth and sixth parts of the test will consist of four users performing planning and scheduling, load generation, load management, creating display pages and procedures, and performing Analysis requests.

The third portion of the test will consist of a ten minute spacecraft contact session, activities will include 16 Kbps HK on the I and Q channel, NCC UPD data, EDOS CODA data, and command activities with a commanding rate of 10 Kbps. Several UserStations will be used to monitor the telemetry decom through the use of telemetry and event displays. TCPDUMP will be used to monitor the CmdToEdos port in order to estimate the time delay between when an emergency command is SENT and the time it reaches the network.

The fifth portion of the test will be identical to the third with the except for 1 Kbps Diagnostic data on the Q and the addition of an Analysis request running on the DataServer. The seventh portion of the test will be identical to the third with the exception of the Housekeeping data rate be pumped up to 25 Kbps on the I and Q.

The final portion of the test will be system shutdown, where all WorkStations will be brought down in an orderly fashion.

Prior to test execution system and process accounting tools will be initialized to capture performance the performance characteristics of the system. Following execution, the data collected will be analyzed and presented to show the CPU, Disk I/O, and Memory usage on each of the workstations. In addition, the response times for commanding, system initialization, and display invocations will be analyzed.

Success Criteria: This test is considered successful when it is shown that:	

- The EOC outputs single emergency commands to the network within 500 milliseconds of the 'SEND' button being hit.

- The EOC computer processing, storage, and network utilization is less than 50% during any 20 minute period of this test

- The FOS is capable of continuously decommutating data throughout contact portions of the testing period (i.e. NO data loss messages)

- The FOS is capable of receiving, decommutating, and storing housekeeping telemetry at rates up to 50 Kbps.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	All WorkStations shall be rebooted.		
2.	Clean CMS and PAS Databases.		
3.	Initialize all data collection tools. VMSTAT, IOSTAT and NETSTAT. Also, TCPDUMP should be initialized to listen to the ports associated with dcomHKI, dcomHKQ, and CmdToEdos.	Files should be written to the /data directory on each of the workstations	
4.	Collect one hour of performance data on all workstations to be used during the test activities.	This data will be used to adjust for the effects of performance data collection.	
5.	Initialize the DataServer.	Initialization time will be collected.	
6.	Initialize the RealTimeServer.	Initialization time will be collected.	
7.	Initialize five UserStations, two with PAS and three without.	Initialization time will be collected.	
8.	Connect to String 100.	Times required to connect to the string will be collected.	

9.	Start hour 1 of the specific user scripts.	One user shall be performing scheduling and load generation activities. One uer will performing Analysis Replays. Two users will generating Display Pages and Procs.	
10.	Configure UserStations to monitor the telemetry decom process, using Display Pages and the Event Display.		
11.	At 50 minutes into the test, flow 10 minutes of 16 Kbps housekeeping data on the I and Q Channels.	Monitor the RealTimeServer and verify that no data is being missed.	
12.	Use the RcmClient and EdosCodaGenerator to send NCC Upd's and EDOS CODA reports to the EOC. Start the SC tool to receive spacecraft commands and transmit CLCW's.		
13.	From the Command Control window, run ECT-2 procs which will send commands to the SC tool. Perform manual commanding activities, capture all times when the 'SEND' button is pressed.	Response time for commands to reach the network shall be collected.	
14.	Perform manual commanding to uplink two loads to the spacecraft (ATC and RTS).		
15.	Start hour 2 of the specific user scripts.		
16.	At 1 hour 50 minutes into the test, flow 10 minutes of 16 kbps housekeeping data on the I and 16 kbps Health & Safety data on the Q channel. Perform commanding activities; to include proc execution, manual command, load uplinks, etc.		

17.	Use the RcmClient and EdosCodaGenerator to send NCC Upd's and EDOS CODA reports to the EOC. Start the SC tool to receive spacecraft commands and transmit CLCW's.		
18.	From the Command Control window, run ECT-2 procs which will send commands to the SC tool. Perform manual commanding activities, capture all times when the 'SEND' button is pressed.	Response time for commands to reach the network shall be collected.	
19.	Perform manual commanding to uplink two loads to the spacecraft (ATC and RTS).		
20.	From the Command Control window Send the FS1_DUMP_TBLINIT1 command to the SC tool and use packGen to send the dump data. Perform this activity twice.	These dumps will be used during hour three of the testing period for the dump/image comparisons.	
21.	Start hour 3 of the specific user scripts.		
22.	At 2 hours 50 minutes into the test, flow 10 minutes of 25 Kbps housekeeping data on the I and the Q channel.		
23.	Use the RcmClient and EdosCodaGenerator to send NCC Upd's and EDOS CODA reports to the EOC. Start the SC tool to receive spacecraft commands and transmit CLCW's.		

24.	From the Command Control window, run ECT-2 procs which will send commands to the SC tool. Perform manual commanding activities, capture all times when the 'SEND' button is pressed.	Response time for commands to reach the network shall be collected.	
25.	Bring the UserStations, RealTimeServer, and DataServer down using the MyKill scripts.	Collect the amount of time required for the MyKill commands to complete.	
26.	Verify that the performance data collection activities where successful and prepare the data for further analysis.	This analysis will be performed off-line.	
27.	End of test.		

UserStation1 - Scheduling and Load Generation

Hour	Action	Expected Result/Output	Pass/ Fail
1.	Scheduling Activities: •Define spacecraft and instrument activities (include activities for scheduling K-band downlinks and Communication Contact Sessions) •Schedule the Spacecraft and Instrument Activities to the TimeLine Command Management Activities: •Build Loads - One of each RTS, Flight Software, Table and Microprocessor Loads - Each load should consist of atleast 10 Commands.	Refer to Test Plans PAS-20xx-B for exact details for scheduling activities.	
2.	Planning and Scheduling Activities: •Define spacecraft and instrument activities (include activities for scheduling K-band downlinks and Communication Contact Sessions) •Schedule the Spacecraft and Instrument Activities to the TimeLine Command Management Activities: •Build Loads - One of each RTS, Flight Software, Table and Microprocessor Loads - Each load should consist of atleast 30 Commands.		

3.	Perform four dump/image comparisons. Compare the dumps to each other and compare them to the ground images.		
4.	End of test.		

UserStation2 - FOS User Interface

HOUR	Action	Expected Result/Output	Pass/ Fail
1.	FOS User Interface Activities: •Create Alphanumeric Display Pages. •Create Display Pages which include graphs and tables to be used for telemetry monitoring.	Refer to testcase FUI-2050B for detailed procedures for generating Display Pages.	
2.	FOS User Interface Activities: •Create Alphanumeric Display Pages. (Telemetry Monitoring, CODA Monitoring, and UPD monitoring.) •Create Display Pages which include graphs and tables to be used for telemetry monitoring.		
3.	FOS User Interface Activities: •Create Alphanumeric Display Pages. •Create Display Pages which include graphs and tables to be used for telemetry monitoring.		

UserStation3 - Procedure Builder

Hour	Action	Expected Result/Output	Pass/ Fail
1.	PROC Builder Activities: •Generate Procs to be used for the uplink of loads. (ATC, RTS, Flight Software, Table, and Microprocessor.) •Generate Procs to be used for the uplink of loads. (ATC, RTS, Flight Software, Table, and Microprocessor.)	Refer to testcase FUI-2050B for detailed procedures for generating PROCS.	
2.	PROC Builder Activities: •Generate generic procs which will consist of a mixture of ECL directives and Spacecraft Commands.		
3.	PROC Builder Activities: •Generate Procs consisting of multiple commands using the Directive Builder tool of the Proc Builder.		

UserStation4 - Analysis

Hour	Action	Expected Result/Output	Pass/ Fail
1.	EOC Analysis Activities: •Perform an analysis request consisting of 50 mnemonics and a half hour worth of archived Telemetry. •Perform a telemetry replay.	Refer to Test Plans ANA-2120b and ANA-2130B for the exact details on how to perform these activities.	
2.	EOC Analysis Activities: •Perform an analysis request consisting of 50 mnemonics and a two hours worth of archived Telemetry.	Make sure that this request runs long enough to run into the RealTime Telemetry received at 1hour 50 minutes into the testing period.	
3.	Use UNIX commands to view the results of the previous analysis requests.		

ECT-2 Scenario Test Procedure

Test Case No: ETE-2010B

Test Configuration: See Appendix G

Test Support: Powered-up FOS servers; one EOC user station that performs command activities; one workstation that performs planning and scheduling activities and monitors telemetry; FOS Server startup scripts; EDOS; ETS/MPS; ('PackGen' telemetry and 'sc' CLCW drivers, but only if EDOS and ETS/MPS are not available); pre-built procs; and pre-built telemetry display pages.

Test Case Description:

This test is designed to verify that core FOS capabilities demonstrated in EOC Compatibility Test #2 (ECT-2) are also provided as part of the pre-RRR Release B delivery. This test includes key Pre-contact, Contact, and Post-contact capabilities within the FOS Planning and Scheduling, Command Management, Command, and Telemetry subsystems. Capabilities of the FOS User Interface, Data Management, and Resource Management subsystems are also utilized. Pre-contact capabilities include defining and scheduling activities; building and scheduling ATC, RTS, and table loads; and generating a DAS and ground script. Contact capabilities include transmitting commands contained in pre-built procs at various rates; uplinking the ATC, RTS, and table loads; monitoring several types of telemetry; and verifying command receipt. Post-contact capabilities entail comparing loads and dumps.

Success Criteria:

This test is successful when the EOC can schedule loads for uplink; transmit commands to EDOS, via Ebnet, at uplink rates compatible with the Space Network and the S-band Contingency Ground Stations; receive real-time telemetry from EDOS, via Ebnet; compare loads and dumps; and provide the capability to indicate the logical string identifier for windows displaying telemetry values.

Telemetry Source: Test objectives that do not involve Diagnostic data can be met by use of the Packet Generator (see Ref A), however it is recommended that MPS/ETS be used for completion of all test objectives. If MPS/ETS is to be used, then data rate changes will be requested by the controller via a CCL-74 voice link with ETS/MPS.

| Ref A. | In a new cmdtool window, enter the following:

%: **cd /fosb/test/am1/scripts/setup**

note: (**test** is the alias)

%: **setenv SCRIPT UserStation**

%: **source FosEnvVars**

%:**cd/fosb/test/am1/bin/sun_sparc_5-5**

note: (**bin** is the alias)

%: **FtPgPackGen**

Wait for following message in PackGen window:

"<u>Packet Generator is ready to receive directives</u>."

To start the telemetry driver, enter the following on the ECL directive line of the Control window:

ECL> **PG CONFIG HOST=225.2.7.00 PORT=* APID=* [APID =*]**

ECL> **PG STARTDATA APID=* [APID=*]   COUNT=-1**

(Note: The IP address and port number is in the file '/fosb/test/am1/config/FoSwConfigData.cnfg'.) | *note*: Both the I and Q channel will need a PackGen window (if PackGen is to be used).

PackGen window will acknowledge PG CONFIG by displaying host and port assignments.

*Assign port and APID numbers as follows:

<u>**(PackGen can not provide Diagnostic data)</u>

  TLM   APID   I   Q   .

  HK   1   20<u>0</u>01   20<u>0</u>10

 H&S   2   20<u>0</u>02   20<u>0</u>11

 16DG** 3   20<u>0</u>03   20<u>0</u>12

 STBY 5   20<u>0</u>04   20<u>0</u>13

 1KDG** 6   20<u>0</u>05   20<u>0</u>14

Note: All ports numbers are for OPS LAN. To specify Support LAN ports, replace the underlined **0** with **1** | |
| **Step ID** | **Action** | **Expected Result/Output** | **Pass/**

Fail |

1.	**Initialization Follows.**	(No expected result/output; information only.)	
2.	Execute applicable steps of the 'FOS Server and User Station Startup and Shutdown' (SYS-2000B) procedure to bring up the Data Server *(Wait for completion of Data Server startup.)*	The Data Server is initialized.	
3.	User Station #1 #2 -- Log in to an EOC user station that can perform Ground Control and Command activities, using UNIX login procedure, by entering a valid User Name and Password Username: **<user name>** Password: ************	The login is accepted and a blank desktop area appears.	
4.	User Station #1 #2 -- Execute applicable steps of the 'FOS Server and User Station Startup and Shutdown' (SYS-2000B) test procedure to bring up the EOC user stations. *(Wait for completion of user station startup)*	User station startup is complete when the Control window and the Planning & Scheduling windows appear on the EOC user stations.	
5.	User Station #1 #2-- Invoke the Global Event Display. In the 'Control window', click on the 'Tools' button. In the 'Tools' menu, select 'Event_Display-Global'.	The 'Tools' menu comes up, then closes. The 'Event Display' comes up.	

6.	Execute applicable steps of the 'FOS Server Startup' (SYS-2000B) procedure to bring up the Real-Time Server. *(There's no need to wait for completion of Real-Time Server startup script at this point.)*	The Real-Time Server is initialized.	
7.	**DAS/ATC Load Generation test follows.**	(No expected result/output; information only.)	
8.	User Station #2 -- Access the pre-defined activities for ECT-2 by bringing up the 'Activity Definer' Tool. Under 'File', select 'Open'. In the 'Open' window, under 'Resource Name', select 'AM1 Command & Data Handling'. Under the 'Activity Names', select 'ATC_EVT3.3'. Click on 'OK' button.	The 'Activity Definer' window comes up. The 'Open' window comes up. The 'Open' window closes. The list of items with times previously built under activities 'ATC_EVT3.1' appears in the 'Items' box in the 'Activity Definer' window.	

9.	User Station #2 -- View the Timeline by bringing up the 'EOS Timeline' tool.	The 'EOS Timeline' window comes up.	
	Under 'File', select 'Open'.	The 'Open Plan' window comes up.	
	In the 'Open Plan' window, select 'Master Plan.	The 'Time Selector' window comes up.	
	Enter Start and Stop Date/Times:	The 'Time Selector' window closes.	
	Start Date: **1997/DDD**	The 'EOS Timeline window spans the time period specified.	
	Start Time: **HH:MM:SS.SSS**	The 'AM1 Command & Data Handling Activity' appears in the 'Seleons' box in the 'Resource Editor' window.	
	Stop Date: **1997/DDD**		
	Stop Time: **HH:MM:SS.SSS**		
	Click on 'OK' button.	The 'Resource Editor' window closes.	
	In the 'EOS Timeline' window, under 'User Setup', select 'Resources'.	'AM1 Command & Data Handling' appears in the bottom row of the 'EOS Timeline' window.	
	In the 'Resource Editor' window, click on 'Activity' and select 'AM1 Command & Data Handling'	The following event message appears: 'user <user id>, Resource Model: plan Master Plan opened from 1997/DDD HH:MM:SS to 1997/DDD HH:MM:SS'.	
	Click on 'ADD' button.		

10.	User Station #2 -- Schedule the 'ATC_EVT3.3' activity by bringing up the 'General Scheduler' tool.	The activity 'ATC_EVT3.3' appears in the 'Activities' box.	
	Under 'Action', select 'Impact'.	The activity 'ATC_EVT3.3' is highlighted.	
	Under 'Open Plans', select 'Master Plan:1'	The following event message appears:	
	Under 'Filter', select 'Activities'.	'Activity ATC_EVT3.3 scheduled on resource AM1 Command & Data Handling on plan Master Plan:1 from 1997/DDD HH:MM:SS to 1997/DDD HH:MM:SS'	
	Under 'Resource', select 'AM1 Command & Data Handling'.		
	Under 'Activities', select 'ATC_EVT3.3'		
	Schedule Start and Stop Date/Times for the 'ATC_EVT3.3' activity:		
	Start Date: **1997/DDD**		
	Start Time: **HH:MM:SS**		
	Stop Date: **1997/DDD**		
	Stop Time: **HH:MM:SS**		
	Click on 'Schedule' icon'		
	Select 'Close' to close the 'General Scheduler' window.		

11.	User Station #2 -- Save the 'ATC_EVT3.3' activity on the 'EOS Timeline'. Scroll to the row that shows 'AM1 Command & Data Handling'. Click on 'Save' button.	The following event messages appear: 'user <user id>, Resource Model: activity ATC_EVT2.1 scheduled on resource AM1 Command & Data Handling on plan Master Plan:1 from 1997/DDD HH:MM:SS to 1997/DDD HH:MM:SS' 'user <user id>, Resource Model: plan Master Plan saved to database' 'user <user id>, Resource Model: saving plan Master Plan:1'	
12.	User Station #2 -- View the 'ATC_EVT3.3' activity on the 'EOS Timeline'. Under 'User Setup', select 'Resource Editor'. Select 'AM1 Command & Data Handling' Click on 'Apply' button.	The 'ATC_EVT3.3' activity appears on the 'EOS Timeline' in the same row as the 'AM1 Command & Data Handling' resource and covers the time period specified in the preceding step.	

13.	User Station #2 -- Generate the DAS/ATC Load by bringing up the 'Load Generator' tool.	A 'Completed' message appears in the 'Jobs Completed' box of the Load Generator window.	
	Select 'DAS/ATC Load'.	The activity 'ATC_EVT3.3' are bolded in the 'EOS Timeline' window.	
	Select 'Master Plan'.		
	Enter DAS Stop Date/Time. (Do not change the start date/time.)	There is a transfer of the DAS to CMS for expansion and ATC load generation.	
	Start Date: **1997/DDD**	A 'processing' status, a 'completed' status, and 'Detailed Activity List' information appear in the Data Server cmdtool window.	
	Start Time: **HH:MM:SS**		
	Stop Date: **1997/DDD**	A 'load complete' event message appears.	
	Stop Time: **HH:MM:SS**	The following files are stored in the directory 'fosb/test/am1/loads/atc':	
	Enter Uplink Start and Stop Date/Times (must be prior to DAS start date/time):	AM1_ATC_97_DDD_a.cnt (load contents)	
	Start Date: **1997/DDD**	AM1_ATC_97_DDD_a_1_OF_1.img (load image)	
	Start Time: **HH:MM:SS**	AM1_ATC_97_DDD_a_1_OF_1.upl (load uplink).	
	Stop Date: **1997/DDD**	The following file is stored in the directory 'fosb/test/am1/reports':	
	Stop Time: **HH:MM:SS**	AM1_ATC_97_DDD_a.rpt (load report)	
	Click on 'Submit' icon'	The ATC commands are included in the file '/fosb/test/am1/groundsched/report' (Integ. Report)jk	
14.	**RTS Load Generation test follows.**	(No expected result/output; information only.)	

15.	User Station #2 -- Invoke the RTS Load Builder display page.	The 'Tools' menu comes up.	
		The 'RTS_Load_Builder' window comes up.	
	In the 'Control window', click on the 'Tools' button.		
	In the 'Tools' menu, select 'RTS_Load_Builder'		
16.	User Station #2 -- In the 'RTS_Load_Builder' window, enter the following:	The 'Delete Time' field is '00:00:01.024.	
		The 'Command' field is 'CDH_TURN_ON_SFE_A'.	
	RTS#: **12**		
	Purpose: **ETE_TEST**		
	Sub/Instr: **CDH**		
	CMD#: **1**		
	Command: **CDH_TURN_ON_SFE_A**		
	UTC: **00**		
	Click on 'Insert' button.		
	Click on 'Validate' button.		
17.	User Station #2 -- Repeat the preceding step except for the following:	The 'Delta Time' field is '00:00:01.024.	
		The 'Command' field is 'CDH_SELECT_CT2_M01'.	
	CMD#: **2**		
	Command: **CDH_SELECT_CT2_M01**		
	UTC: **1.024**		

18.	User Station #2 -- Repeat the preceding step except for the following: CMD#: **3** Command: **CDH_SELECT_CT2_M02** UTC: **128**	The 'Delta Time' field is '00:00:01.024. The 'Command' field is 'CDH_SELECT_CT2_M02'.	
19.	User Station #2 -- Repeat the preceding step except for the following: CMD#: **4** Command: **CDH_TURN_OFF_SFEA** UTC: **128**	The 'Delta Time' field is '00:00:01.024. The 'Command' field is 'CDH_TURN_OFF_SFEA'.	
20.	User Station #2 -- Click on 'Generate' button. Click on 'OK' button.	The 'PASS' item is highlighted next to the 'Generate' field. The RTS Load Builder window closes. The following event messages appear: 'Load Catalog RTS load generation started for AM1_RTS_12_CDH_ETE_TEST'. 'Load Catalog RTS load generation completed for AM1_RTS_12_CDH_ETE_TEST'.	
21.	**Table Load Generation test follows.**	(No expected result/output; information only.)	

22.	User Station #2 -- Invoke the Table Load Builder display page. In the 'Control window', click on the 'Tools' button. In the 'Tools' menu, select 'Table_Load_Builder'	The 'Tools' menu comes up. The 'Table_Load_Builder' window comes up.	
23.	User Station #2 -- In the 'Table_Load_Builder' window, enter the following: Name: **AM1_TBL_TESTKM_1** Under "File, select 'Validate'. Under "File, select 'Generate'.	The following messages appear at the bottom of the Table_Load_Builder window: 'Validation Complete'. 'Table load generation complete for load AM1_TBL_ TESTKM_1' The following event messages appear: 'Load Catalog Table load generation started for AM1_TBL_ TESTKM_1' 'Load Catalog Table load generation completed for AM1_TBL_ TESTKM_1'	
24.	**Telemetry and Command Preparation test follows.**	(No expected result/output; information only.)	
25.	User Station #1 #2 -- Connect to the default real-time operational string by entering the following in the ECL directive line of the Control window: ECL> **STRING CONNECT STRING=100 CONFIG=MIRROR** *(Wait for string connection to complete)*	After several minutes, the message 'Successfully connected to string 100' appears on the Event Display.	

26.	User Station #2 -- Bring up the ECT2 Telemetry display page (for the 'I' channel). In the 'Control window', click on the 'TlmWins' button. In the 'Tlm Wins' menu, select 'ECT2'.	The 'Tools' menu comes up. The 'ECT2' display page comes up	
27.	User Station #2 -- Connect the ECT2 display page to String 100. With the cursor on the ECT2 display page, use the right mouse button to bring up the 'Data Source Selector' window.	The 'Data Source Selector' window comes up.	
28.	User Station #2 -- In the 'Data Source Selector' window. Click on 'Refresh' button. In the 'Established Connections' portion, select the row with String Id = 100, I channel. Select the existing row in 'Assigned Connections' portion. Click on 'Switch Connection' button. Click on 'Close' button.	The information selected in the 'Established Connections' portion overwrites the 'Assigned Connections' portion of the 'Data Source Selector' window. The 'Data Source Selector' window closes. The heading of the 'ECT2' display page indicates String 100.	

29.	User Station #2 -- Bring up the Housekeeping Telemetry display page (for the 'Q' channel). In the 'Control window', click on the 'TlmWins' button. In the 'Tlm Wins' menu, select 'ECT2'.	The 'Tools' menu comes up. The 'ECT2' display page comes up.	
30.	User Station #2 -- Connect the ECT2 display page to String 100. With the cursor on the ECT2 display page, use the right mouse button to bring up the 'Data Source Selector' window.	The 'Data Source Selector' window comes up.	
31.	User Station #2 -- In the 'Data Source Selector' window. Click on 'Refresh' button. In the 'Established Connections' portion, select the row with String Id = 100, Q channel. Select the existing row in 'Assigned Connections' portion. Click on 'Switch Connection' button. Click on 'Close' button.	The information selected in the 'Established Connections' portion overwrites the 'Assigned Connections' portion of the 'Data Source Selector' window. The 'Data Source Selector' window closes. The heading of the 'ECT2' display page indicates String 100.	

32.	User Station #1 -- Remotely log in to the Real-Time Server by entering the following in a new cmdtool window.	***NOTE: This step is to be omitted if MPS/ETS is used to supply the CLCW's.**	
	%: **rlogin <Real-Time Server id>**	The following message appears repeatedly in the Real-Time Server cmdtool window:	
	At the Real-Time Server prompt start the 'sc' tool by entering the following:	'Waiting for command'	
	%: **cd /fosb/test/am1/scripts/setup** (alias is **test**)		
	%: **setenv SCRIPT RealTimeServer**		
	%: **source FosEnvVars**		
	%: **cd /fosb/test/am1/bin/sun_sparc_5-5**		
	(alias is **bin**)		
	%: **sc AM1 100 Ops**		
33.	User Station #1 -- Initiate the tcpdump tool to capture outgoing **real-time, operational** commands.	The following message appears in the cmdtool window:	
	In a new cmdtool window, enter the following:	'listening on le1'	
	%: **tcpdump -v port 20158**	*port 20058 for Ops LAN (*'listening on le0')	
34.	User Station #1 -- Initiate the tcpdump tool to capture incoming **CLCW**s.	The following message appears in the cmdtool window:	
	In a new cmdtool window, enter the following:	'listening on le1'	
	%: **tcpdump -v port 20151**	*port 20051 for Ops LAN (*'listening on le0')	

35.	User station #1 -- Take ground control for String 100. Enter the following ECL directive: E C L > **TAKE GROUNDCONTROL STRING=100**	The following event messages appear: 'Ground Control Authority has changed from <former user or EcDNull> to <User #1> for String 100'	
36.	User Station #1 -- Take command of String 100. Enter the following ECL directive: ECL> **TAKE COMMAND STRING=100**	The following event messages appear: 'Command Authority has changed from <former user or EcDNull> to <User #1> for String 100'	
37.	User Station #1 -- From the Control window, bring up the 'Command Control window'. In the 'Control window', click on the 'Tools' button. In the 'Tools' menu, select 'Command_Control' In the Command Control dialog box, enter the following: STRING = **100** S/C ID: **AM1**	The 'Tools' menu comes up. The 'Command Control window' comes up. The Command Control dialog box comes up and then closes after user input.	
38.	User Station #1 -- In the 'Config' pull-down menu of the 'Command Control window', set the following: Command Verification (CV): **Off** Telemetry Verification (TV): **Off**	In the 'Command Control window', the following occurs: The 'CV' and 'TV' indicators are both '**Off**'.	
39.	**ECT-2/Event 1 test follows.**	(No expected result/output; information only.)	

40.	User Station #1 – Initiate **16 kbps housekeeping** on the **I-Channel**.	User Station #2 -- Housekeeping telemetry values are displayed on the 'ECT2' display page connected to String 100, I-channel.	
41.	User Station #1 – Initiate **16 kbps housekeeping** and **CLCWs** on the **Q-Channel**.	User Station #2 -- Housekeeping telemetry values are updated on the 'ECT2' display page connected to String 100, Q-channel.	
42.	User station #1: Set the Command transmission rate to 10 kbps by entering the following in the CMD directive line of the Command Control window: CMD> **COMMANDCONFIG RATE=10000**	The following event message appears: 'Protocol Info: Command rate set to 10000'	
43.	**Command Proc Subprocedure:** User Station #1 -- In the 'Command Control window', enter the following in the CMD field to execute the applicable proc: CMD>: **START <proc name>** Click on 'Resume' Click on 'Send' Click on 'Suspend'	In the 'Command Control window', the following occurs: The DIRECTIVE column contains the contents of the proc. After the 'Resume' button is clicked, the Send/Cancel options are activated. After the 'Send' button is clicked, the STATUS column contains 'Processed -2	Sent to subsys'. Event messages indicate the status of the commands in the proc. Messages in tcpdump window indicate commands have been sent. Messages in the tcpdump window indicate CLCWs have been received.	

44.	User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs:
	
	    CMD:> **START E2ABC1A**
	
	    CMD:> **START E2VARC1A**
	
	    CMD:> **START E2SCT1A**
	
	    CMD:> **START E2SET16HK16DG**
	
	(Wait for completion of each proc before entering the next one.)
		In the 'Command Control window', the following occurs:
		
		The DIRECTIVE column contains the contents of the proc.
		
		After the 'Resume' button is clicked, the Send/Cancel options are activated.
		
		After the 'Send' button is clicked, the STATUS column contains 'Processed -2 | Sent to subsys'.
		
		Event messages indicate the status of the commands in the proc.
		
		Messages in tcpdump window indicate commands have been sent.
		
		Messages in the tcpdump window indicate CLCWs have been received.	

45.	User Station #1 -- Terminate the Q-channel telemetry.	User Station #2 -- Housekeeping telemetry values are no longer updated on the 'ECT2' display page connected to String 100, Q-channel.	
46.	User Station #1 -- Initiate **16 kbps diagnostic** on the **Q-Channel** .	User Station #1 – Messages in tcpdump window indicate 16 kbps diagnostic data is being received on the Q-channel	

47.	User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs:	In the 'Command Control window', the following occurs:
	CMD:> **START E2RTS16DG**	The DIRECTIVE column contains the contents of the proc.
	(Alternatively:	After the 'Resume' button is clicked, the Send/Cancel options are activated.
	CMD:> **LOAD AM1_RTS_1_MOD_drlt20 1 1**)	After the 'Send' button is clicked, the STATUS column contains 'Processed -2	Sent to subsys'.
	CMD:> **START E2ATC16DG**	
	(Alternatively:	Event messages indicate the status of the commands in the proc.
	CMD:> LOAD AM1_ATC_1997DDDNN_0_1 1 1)	Messages in tcpdump window indicate commands have been sent.
	CMD:> **START E2TBL16DG**	
	(Alternatively:	Messages in the tcpdump window indicate CLCWs have been received.
	CMD:> **LOAD AM1_TBL_TESTKM_1 1 1**)	
	CMD:>**START E2SETSBT1XMTROFF**	
	(Wait for completion of each proc before entering the next one.)	
48.	Note: Execute at least one of the following dump and image compare steps.	(No Expected Result/Output. Information only.)

49.	User station #1: Enter a dump command for the RTS load. Initiate the image compare of the RTS load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP RTS DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
50.	User station #1: Enter a dump command for the ATC load. Initiate the image compare of the ATC load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP ATC DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
51.	User station #1: Enter a dump command for the Table load. Initiate the image compare of the Table load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP TABLE DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	

52.	User Station #1 – Display the results of the image compare(s) by entering the following in a cmdtool window:
	
	   %: **cd /fosb/test/am1/reports/compare**
	
	   %: **ls -l**
	
	   %: **more <compare results filename>**
		The results of the compare is displayed and the number of miscompares is consistent with the event message generated by the 'IMGCMP' directive in the preceding steps.	

53.	**ECT-2/Event 2 test follows.**	(No expected result/output; information only.)	
54.	User station #1: Set the Command transmission rate to 2 kbps by entering the following in the CMD directive line of the Command Control window: CMD> **COMMANDCONFIG RATE=2000**	The following event message appears: 'Protocol Info: Command rate set to 2000'	

55.	User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs: CMD:> **START E2RTS16DG** (Alternatively: CMD:> **LOAD AM1_RTS_1_MOD_drlt20 1 1**) CMD:> **START E2ATC16DG** (Alternatively: CMD:> LOAD AM1_ATC_1997DDDNN_0_1 1 1) CMD:> **START E2TBL16DG** (Alternatively: CMD:> **LOAD AM1_TBL_TESTKM_1 1 1**) *(Wait for completion of each proc before entering the next one.)*	In the 'Command Control window', the following occurs: The DIRECTIVE column contains the contents of the proc. After the 'Resume' button is clicked, the Send/Cancel options are activated. After the 'Send' button is clicked, the STATUS column contains 'Processed -2	Sent to subsys'. Event messages indicate the status of the commands in the proc. Messages in tcpdump window indicate commands have been sent. Messages in the tcpdump window indicate CLCWs have been received.	
56.	Note: Execute at least one of the following dump and image compare steps.	(No Expected Result/Output. Information only.)	

57.	User station #1: Enter a dump command for the RTS load. Initiate the image compare of the RTS load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP RTS DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
58.	User station #1: Enter a dump command for the ATC load. Initiate the image compare of the ATC load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP ATC DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
59.	User station #1: Enter a dump command for the Table load. Initiate the image compare of the Table load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP TABLE DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	

60.	User Station #1 – Display the results of the image compare(s) by entering the following in a cmdtool window:
	
	    %: **cd /fosb/test/am1/reports/compare**
	
	    %: **ls -l**
	
	    %: **more <compare results filename>**
		The results of the compare is displayed and the number of miscompares is consistent with the event message generated by the 'IMGCMP' directive in the preceding steps.	

61.	User station #1: Set the Command transmission rate to 1 kbps by entering the following in the CMD directive line of the Command Control window: CMD> **COMMANDCONFIG RATE=1000**	The following event message appears: 'Protocol Info: Command rate set to 1000'	

| 62. | User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs:

    CMD:> **START E2RTS16DG**

(Alternatively:

    CMD:> **LOAD AM1_RTS_1_MOD_drlt20 1 1**)

    CMD:> **START E2ATC16DG**

(Alternatively:

    CMD:> LOAD AM1_ATC_1997DDDNN_0_1 1 1)

    CMD:> **START E2TBL16DG**

(Alternatively:

    CMD:> **LOAD AM1_TBL_TESTKM_1 1 1**)

    CMD:> **START E2SET125B1HS1HS**

    CMD:>**START E2SETSBT1XMTROFF**

(Wait for completion of each proc before entering the next one.) | In the 'Command Control window', the following occurs:

The DIRECTIVE column contains the contents of the proc.

After the 'Resume' button is clicked, the Send/Cancel options are activated.

After the 'Send' button is clicked, the STATUS column contains 'Processed -2 \| Sent to subsys'.

Event messages indicate the status of the commands in the proc.

Messages in tcpdump window indicate commands have been sent.

Messages in the tcpdump window indicate CLCWs have been received. | |
| 63. | Note: Execute at least one of the following dump and image compare steps. | (No Expected Result/Output. Information only.) | |

64.	User station #1: Enter a dump command for the RTS load. Initiate the image compare of the RTS load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP RTS DUMP=\<Dump Filename> LOAD=\<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare. The directory '/fosb/test/am1/reports/compare' contains the results of the image compare.	
65.	User station #1: Enter a dump command for the ATC load. Initiate the image compare of the ATC load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP ATC DUMP=\<Dump Filename> LOAD=\<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare. The directory '/fosb/test/am1/reports/compare' contains the results of the image compare.	
66.	User station #1: Enter a dump command for the Table load. Initiate the image compare of the Table load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP TABLE DUMP=\<Dump Filename> LOAD=\<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare. The directory '/fosb/test/am1/reports/compare' contains the results of the image compare.	
67.	User Station #1 -- Terminate the I and Q-channel diagnostic data.	User Station #2 -- Event messages about diagnostic data terminate.	
68.	**ECT-2/Event 3 test follows.**	(No expected result/output; information only.)	

69.	User Station #1 – Initiate **1kbps Health & Safety** on the **I-Channel** and **1 kbps diagnostic** on the **Q-Channel** .	User Station #2 – Health & Safety telemetry values (1 kbps) are displayed on the 'ECT2' display page connected to the I-channel. Event messages are displayed about diagnostic data.	
70.	User station #1: Set the Command transmission rate to 125bps by entering the following in the CMD directive line of the Command Control window: CMD> **COMMANDCONFIG RATE=125**	The following event message appears: 'Protocol Info: Command rate set to 125bps'	
71.	User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs: CMD:> **START E2RTS1DG** CMD:> **START E2ATC1DG** CMD:> **START E2TBL1DG** CMD:> **START E2LOCKOUT** CMD:> **START E2SETSBT1XMTROFF** *(Wait for completion of each proc before entering the next one.)*	In the 'Command Control window', the following occurs: The DIRECTIVE column contains the contents of the proc. After the 'Resume' button is clicked, the Send/Cancel options are activated. After the 'Send' button is clicked, the STATUS column contains 'Processed -2	Sent to subsys'. Event messages indicate the status of the commands in the proc. Messages in tcpdump window indicate commands have been sent. Messages in the tcpdump window indicate CLCWs have been received.	

| 72. | User Station #1 -- Execute the Command Proc Subprocedure by entering the following in the CMD field to execute the respective procs:

    CMD:> **START E2RTS1DG**

(Alternatively:

CMD:> **LOAD AM1_RTS_1_MOD_drlt20 1 1**)

    CMD:> **START E2ATC1DG**

(Alternatively:

CMD:> LOAD AM1_ATC_1997DDDNN_0_1 1 1)

    CMD:> **START E2TBL1DG**

(Alternatively:

CMD:> **LOAD AM1_TBL_TESTKM_1 1 1**)

    CMD:> **START E2LOCKOUT**

    CMD:>**START E2SETSBT1XMTROFF**

(Wait for completion of each proc before entering the next one.) | In the 'Command Control window', the following occurs:

The DIRECTIVE column contains the contents of the proc.

After the 'Resume' button is clicked, the Send/Cancel options are activated.

After the 'Send' button is clicked, the STATUS column contains 'Processed -2 | Sent to subsys'.

Event messages indicate the status of the commands in the proc.

Messages in tcpdump window indicate commands have been sent.

Messages in the tcpdump window indicate CLCWs have been received. | |
| 73. | Note: Execute at least one of the following dump and image compare steps. | (No Expected Result/Output. Information only.) | |

74.	User station #1: Enter a dump command for the RTS load. Initiate the image compare of the RTS load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP RTS DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
75.	User station #1: Enter a dump command for the ATC load. Initiate the image compare of the ATC load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP ATC DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	
76.	User station #1: Enter a dump command for the Table load. Initiate the image compare of the Table load and dump by entering the following in the CMD field of the Command Control window: CMD:> **IMGCMP TABLE DUMP=<Dump Filename> LOAD=<Load Filename>**	The dump command is successful. Event messages indicate the start, finish, and resulting status of the image compare.	

77.	User Station #1 – Display the results of the image compare(s) by entering the following in a cmdtool window:	The results of the compare is displayed and the number of miscompares is consistent with the event message generated by the 'IMGCMP' directive in the preceding steps.	
	%: **cd /fosb/test/am1/reports/compare**		
	%: **ls -l**		
	%: **more \<compare results filename\>**		
78.	User Station #1 -- Terminate the I and Q-channel telemetry. ECL> **PG STOPDATA APID=2**	User Station #2 – Health & Safety telemetry values are no longer updated on the 'ECT2' display page connected to String 100, I-channel.	
79.	End of test.		

Year 2000

Test Case No: ETE-2050B
Test Configuration: See Appendix G
Test Support: EOC startup scripts. Data Server, Real-Time Server, UserStation.
Test Case Description:
This test case is designed to verify the capability of the FOS software to successfully handle the year 2000 time change. FOS sub-systems should be able to timestamp the incoming telemetry with the rollover date and continue to function normally. The test is designed to exercise each sub-system of the FOS software. The test will start with the normal system set-up and will continue with the flow of telemetry commencing with a start time of Year 1999, Day 365, Hours 23, and Minutes 30, the telemetry will continue through the year change, then it will stop approximately 10 minutes into the new year (2000). After successfully archiving the telemetry, the test conductor will use portions of 20 test cases that have been pre-written for the FOS Release B testing at Goddard to demonstrate the FOS software's integrity.
Success Criteria:
The test is considered successful when the FOS software is able to accept, process and continue to function after accepting the rollover from the year 1999 to the year 2000.

Step Id	Action	Expected Result/Output	Pass/ Fail
1.	Log onto an EOC workstation. Start the Data Server. Reference Test Case SYS2000B -- FOS Server Startup.	Data Server processes are running.	
2.	Start the Real-Time Server. Reference Test Case SYS2000B -- FOS Server Startup.	Real-Time Server processes are running.	

3.	Log onto 1 FOT User Station. Start the User Station. Reference Test Case SYS2010B -- User Station Startup and Authentication.	The FOT User Station is running and the 'Control Window' is displayed.	
4.	Initialize the 'Global' event graphical timeline and event message displays from the Tools button by clicking on the Tools button located at the bottom of the Environment Control window, then select the 'Global' Events Display option.	The 'Global' events display will be displayed on the UserStation screen.	
5.	Connect to a real-time operational string from the Environment Control window; **% STRING CONNECT STRING =100 CONFIG=MIRROR**	Events Display message output: 'Successfully connected to string 100'	
6.	Take groundcontrol at UserStation. **% TAKE GROUNDCONTROL STRING=100**	Events Display message output: 'Ground Control Authority has changed from EcDNull to fostestX for string 100.	
7.	Take Command Control at the UserStation. **% TAKE COMMAND STRING=100**	Events Display message output: 'Command Authority has changed from EcDNull to fostestX for string 100' 'Command Authority of NccGroundMgr changed to user: fostestX WKS: foseXoe' 'Command Authority of NccStatusMgr changed to user: fostestX WKS: foseXoe'	

8.	**Reference Test Case # TLM-2170B** Multiple Source TLM Data Receipt & Display		
9.	**Reference Test Case # TLM-2190B** Telemetry Replay Processing & Display		
10.	**Reference Test Case EVT-2000B** Event Message Display & Event Graphical Timeline		
11.	**Reference Test Case EVT-2020B** Event History Request & Reporting		
12.	**Reference Test Case FUI-2030B** Display Builder Alphanumeric		
13.	**Reference Test Case FUI-2110B** Display Builder Tables & Graphs		
14.	**Reference Test Case ANA-2000B** Dataset Generation - General Analysis		
15.	**Reference Test Case ANA-2110B** User Specified Statistics		
16.	**Reference Test Case FDF-2000B** FDF Interface		
17.	**Reference Test Case PAS-2040B** Contact Scheduler		

18.	**Reference Test Case PAS-2000B** Activity Definer Tool		
19.	**Reference Test Case PAS-2010B** BAP Definer Tool		
20.	**Reference Test Case PAS-2200B** DAS Generation		
21.	**Reference Test Case PAS-2110B** Scheduling Load Uplink Activities		
22.	**Reference Test Case CMS-2090B** ATC Load generation & Validation		
23.	**Reference Test Case NCC-2040B** Ground Telemetry Replay		
24.	**Reference Test Case CMS-2100B** ATC Load Management		
25.	**Reference Test Case CONT-2040B** State Check		
26.	**Reference Test Case FUI-2090B** User Authenication & Display		
27.	**Reference Test Case CMD-2015B** Ground Script Commanding		

28.	End of test.		